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THE INTERDEPENDENCE OF LAKE ICE AND CLIMATE IN CENTRAL NORTH AMERICA

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16. Abstract

The investigation demonstrates the effectiveness of ERTS-1 imagery as a means of regularly tracking the freezing and thawing of lakes in central North America, particularly the transition zone separating completely ice-covered lakes to the north from ice-free lakes to the south. The consistent northwest-southeast orientation of the transition zone regardless of season indicates a strong climatic interdependence. A comparison of migration routes exhibited by both the freeze transition zone and atmospheric pressure centers during the autumn of 1972 reveals the following consis tencies: (1) polar continental cyclones originate within and/or travel along the trend of the transition zone; (2) polar continental anticyclones fail to cross the transition zone; (3) polar outbreak anticyclones pass through the transition zone unaffected. These consistencies, coupled with a significant intensification of cyclones positioned over the transition zone, suggest that the zone is a major causative factor for the weather in its vicinity. The concomitant influence of regional climate on the freezing and thawing of lakes is shown to be manifest by the integrated average air temperature or running mean temperature (RMT). A comparison of RMT for 18 Canadian weather stations and the movements of the freeze/thaw transition zone during the 1961, 1963, and 1972 ice years confirms that the deep lakes of a region (> 6m mean depth) generally will freeze (thaw) when the 40-day RMT reaches $0^{\circ}C$ ($4^{\circ}C$), and the shallow lakes (< 6m mean depth) will freeze (thaw) when the 10-day RMT reaches $0^{\circ}C$ ($4^{\circ}C$). This finding has potential value for estimating the arrival and departure of the transition zone at a given locale or predicting the freezing and thawing dates of lakes with known water mass.

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PREFACE

The primary goal of this investigation was to identify any correlations between the freeze/thaw cycles of lakes and regional weather variations. To meet this objective ERTS-1 imagery of central Canada and north-central United States were examined on a seasonal basis. The ice conditions of certain major ice-survey lakes were noted using standard photo interpretation techniques, the observations recorded on magnetic tape, and base maps used to draw the position of the lake freeze/thaw transition zone. Weather data, as available from the U.S. Weather Service and the Atmospheric Environment Service of Canada were compared with the transition zone migration patterns to determine any correlations.

Comparisons for the 1972 freeze season produced the following correlations:

- Polar continental cyclones originate within and/or travel along the trend of the transition zone.
- Polar continental anticyclones fail to cross the transition zone.
- Polar outbreak anticyclones pass through the transition zone without undergoing any apparent change.

A complementary analysis of various meteorological parameters indicated that storm centers associated with the transition zone underwent significant intensification expressed by a deepening of the pressure trough and increased precipitation outside the zone.

The influence of regional climate on the transition zone was indicated by the consistent northwest-southeast trend of the zone regardless of season, suggesting that latent and sensible heat transfer are the dominant processes controlling both lake freezing and thawing. This conclusion was supported by a comparative study of daily running mean air temperature (RMT) for 18 Canadian weather stations and the movements of the freeze/thaw transition zone. The results demonstrated that transition zone boundaries could be approximated by an appropriate choice of RMT averaging interval. Hence a predictive model was formulated for estimating the arrival and departure of the transition zone:

- Freeze Season "deep" lakes freeze when the 40-day RMT reaches the freezing temperature (0°C), and "shallow" lakes freeze when the 10-day RMT reaches the freezing temperature;
- Thaw Season "deep" lakes thaw (breakup) when the 40-day RMT reaches the temperature of maximum water density (4°C), and "shallow" lakes thaw when the 10-day RMT reaches the temperature of maximum water density.

"Deep" and "shallow" lakes are greater than and less than 6 meters in mean depth respectively.

In the strictest sense the results of this investigation are applicable only to the 1972 ice year. Although some corroborative data are available from studies by other investigators, the general applicability of several of the findings remains open to question until confirmed by additional studies.

ACKNOWLEDGEMENTS

The principal investigator would like to recognize the valuable work of John T. Martin who assisted with the preparation of much of the meteorological data used in this investigation, and without whom the interpretive analysis of the ERTS imagery could not have been completed.

The efforts of Fontaine King and Mary Kinsley in the sorting, ordering, and filing of the ERTS imagery are gratefully acknowledged. The Meteorology Branch, NASA/GSFC, is thanked for their cooperation in loaning North American Surface Charts. The Field Meteorological Systems Branch of the Canadian Atmospheric Environment Service supplied historical and ground truth information on the freezing and thawing of many lakes; their assistance is greatly appreciated. The cooperation offered by these and other state, provincial, and federal officials contacted during the course of the investigation was instrumental in the successful conclusion of this work.

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SECTION 1.0 INTRODUCTION

This report is a comprehensive review of all work performed under contract number NAS 5-21761 since the inception of the project in May 1972. Only principal highlights of the effort are reported here; supplemental details on various topics can be obtained by consulting previous project reports as referenced throughout this document.

1.1 OBJECTIVES

The principal goal of this investigation was to apply ERTS-1 imagery to the study of the interdependence of lake ice and climate in central North America. This goal is manifest by a number of interrelated objectives:

- 1. Perform a lake ice survey.
- 2. Map the migration of the lake transition zone during the course of an ice year.
- 3. Correlate the transition zone and its movements with regional climatic factors.
- 4. Develop a technique for predicting the freezing and thawing of lakes.
- 5. Estimate the mean depths of lakes on the basis of their freezing sequence.

To some extent each of these objectives has been satisfied, although not always with the result that had originally been envisioned [1].

A description of the tasks undertaken to achieve the above objectives and the outcome of those tasks comprises the bulk of this report.

SECTION 2.0 ANALYTICAL PROCEDURE

This section provides a summary of the work performed along with the methods employed to accomplish that work.

2.1 TEST SITE

The test site selected for this investigation comprises the whole of central North America north of 40°N latitude (Figure 1). Included within the site are nine states and five provinces covering a total area of approximately 1.16 million square miles or roughly 13% of the United States and 45% of Canada.

The dotted lines in Figure 1 represent the approximate ground tracks of the ERTS-1 satellite on its descending (or data collection) orbital node. The numbers associated with each ground track identify one day of the satellite's 18-day coverage cycle. As the map indicates, complete coverage of the test site requires the full 18-day cycle.

The test site was chosen not only for its large number of lakes, the exact total of which is unknown, but also for its relatively level topography and low elevation. Hence variations in the freezing and thawing of lakes due to altitudinal or topographic effects are minimized.

Protected by high mountain ranges on the west the site's climate is virtually of a continental variety with hot, dry summers and cold, wet winters. The fairly uniform, predictable climate over most of the study area enabled lake-climate interactions to be interpreted as variances from the general climatic pattern.

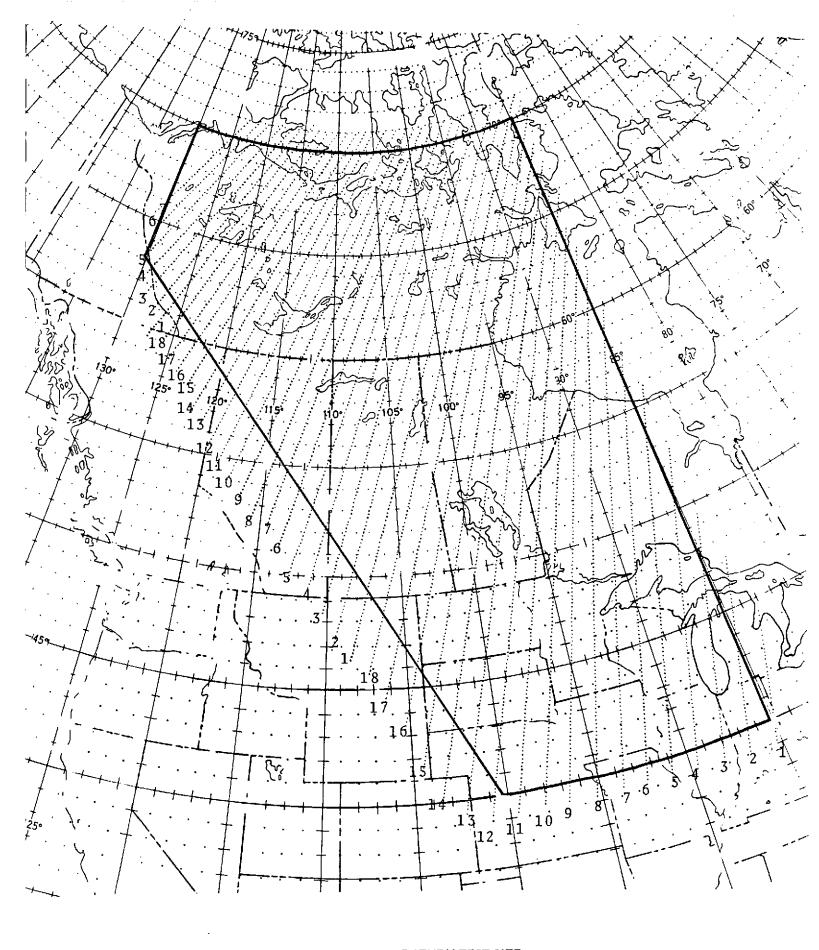


FIGURE 1. LAKE ICE STUDY TEST SITE

2.2 SURVEY LAKES

2.2.1 Lake Selection

In order to provide the basis for a lake ice survey, an initial task of this project was to identify and select survey lakes. "Survey lakes" are those waterbodies within the test site whose ice conditions were monitored using ERTS-1 imagery. A screening process was adopted whereby all available lakes were tested against either of two criteria:

- Availability of morphometric data,
- Availability of freeze/thaw information.

Morphometric data was defined as surface area, mean depth, and maximum depth, whereas freeze/thaw information was taken to include any historic and/or up-to-date freezing and thawing dates.

A number of potential or candidate survey lakes were found in the open literature [2,3,4,5,6]. In addition, responsible government officials at the state/province and federal levels were contacted for assistance. The Atmospheric Environment Service of Canada was particularly helpful in supplying recent freeze/thaw information from their own rather extensive lake ice survey.

Using the aforementioned criteria as a basis, a total of 411 candidate lakes were identified. Of this number only 65 percent or 268 lakes were finally chosen as survey lakes. In order to be selected each survey lake had to be located and positively identified on base maps consisting of Operational Navigation Charts (ONC), scale 1:1,000,000. This requirement eliminated nearly all lakes with surface areas less than about 2 square kilometers. Inaccurate or nonexistent location data were also a critical factor in the selection process.

The geographical distribution of all candidate and survey lakes is shown in Table 1. As reflected by the table, Wisconsin proved to be the best source of data. Surprisingly, information about the lakes of Michigan and Minnesota was extremely limited. Aside from Wisconsin, few readily accessible sources of limnological information concerning United States lakes seem to exist. On the whole, Canadian lakes are better documented, although here too the availability of information required for this study was limited in relation to the total number of lakes.

As the investigation progressed, more survey lakes were added in order to fill gaps in the geographic coverage of the lake ice survey. Eventually, a total of 357 lakes were included.

2.2.2 Lake Identification Code

Survey lakes were distinguished on the base maps by means of a lake identification code unique to each lake. The code consists of six characters, aabbbc, where aa is state or province reference number, bbb is a lake sequence number for a given state or province, and c is a data descriptor indicating the type of information available for a given lake. The meanings of valid identification symbols are given in Table 2. As an example, consider the identification code 040332. According to Table 2 this study lake is located in Manitoba (MAN) and is the 33rd lake from Manitoba to be catalogued. In addition, the data descriptor code, 2, indicates that both morphometric information and updated freeze/thaw dates are available for lake 040332.

Thus, an identification code number exists for each lake used in the investigation. Note that new lakes may be added by the assignment of a number, and even lakes without

Table 1. Geographical Breakdown of Candidate
Lakes and Survey Lakes Selected for use
in the Lake Ice Investigation

Country	State/Province		Candidate <u>Lakes</u>	Survey Lakes
CANADA	Northwest Territo	ories	33	22
	Alberta		8	7
	Saskatchewan		52	27
	Manitoba		41	35
	Ontario		24	14
	S	Sub-Total	158	105
UNITED	I 11 inois		15	10
STATES	Indiana		6	4
	Iowa	•	8	4
	Michigan		21	5
	Minnesota		5	3
	Nebraska		31	15
	North Dakota		6	5
	South Dakota		11	11
	Wisconsin		150	<u>106</u>
	S	Sub-Total	253	163
	Т	OTAL	411	268

Table 2. Lake Identification Code (aabbbc), Allowable Symbols and Their Definition

Location Code (aa)

Code	State/Province	Symbo1
01	Northwest Territories	NWT
02	Alberta	ALB
03	Saskatchewan	SAS
04	Manitoba	MAN
05	Ontario	ONT
06	Illinois	ILL
07	Indiana	IND
08	Iowa	IWA
09	Michigan	MCH
10	Minnesota	MIN
11	Nebraska	NEB
12	North Dakota	NDA
13	South Dakota	SDA
14	Wisconsin	WIS

Sequence Number Code (bbb)

Allowable range: 001-999

Data Descriptor Code (c)

Code	Morphometry	Updated ^a Freeze/Thaw Information	Historic ^b Freeze/Thaw Information
0	-	-	-
1	χ	-	-
2	Х	X	-
3	· X	-	X
4	-	X	-
5	-	· -	Х

aAs applied in the code "updated" means including the 1971 ice year.

b"Historic" means up to, but not including, the 1971 ice year.

morphometric and/or freeze/thaw data may be included by using the descriptor code 0. Those 357 lakes employed in this investigation as survey lakes are listed in Appendix A along with their identification codes.

2.2.3 Data Base Record

As indicated in a previous section, pre-selected survey lakes were required to meet one of two criteria:

(1) their morphometry must be known and/or (2) their freezing and thawing history must be known. The complete data base record of morphometry and icing history on all 268 pre-selected survey lakes is presented in Appendix B. To the author's knowledge this record represents the largest and most comprehensive data set of its type ever collected for North American lakes. Lake Mendota (Wisconsin) has the longest icing history, 107 ice years, beginning in 1852-53. Several other Wisconsin lakes also have long records, but these are exceptional. On the whole the data are spotty at best, and, with the exception of those Canadian lakes for which the Atmospheric Environment Service of Canada makes ice observations, the record is hardly up-to-date.

2.3 METEOROLOGICAL DATA ACQUISITION

Supporting meteorological data were acquired from the following subscription publications:

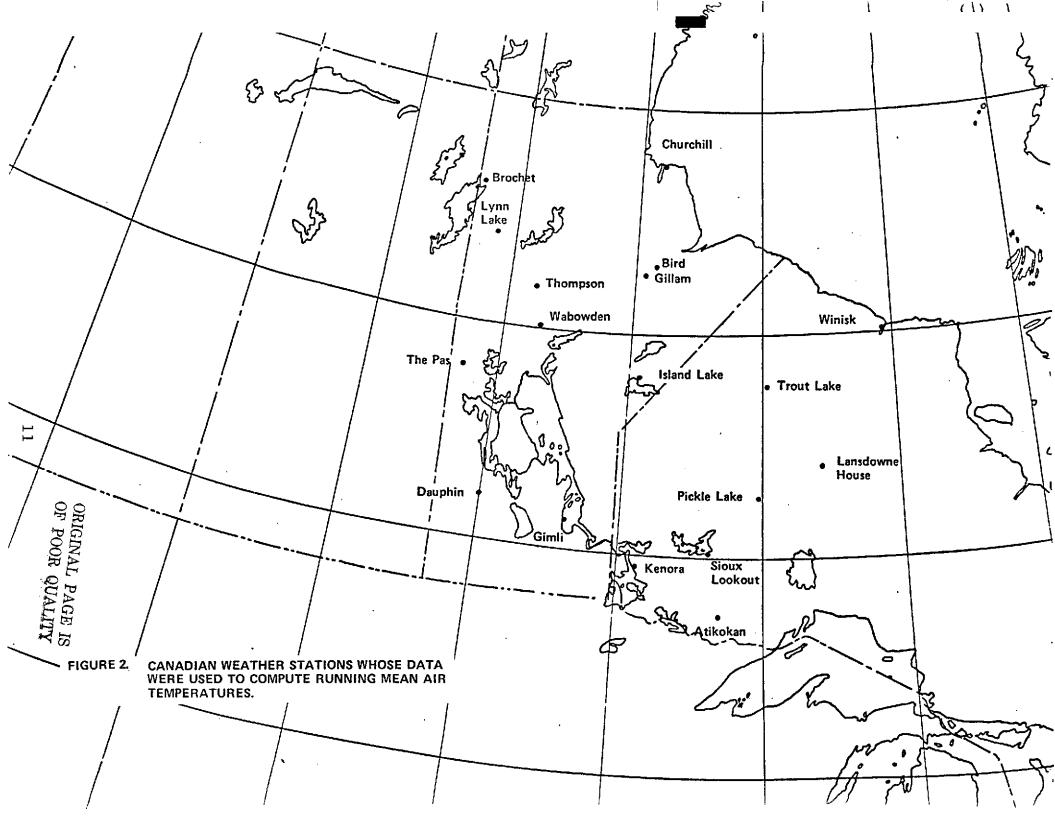
- Daily Weather Maps (Weekly Series) (U.S.)
- Monthly Climatological Data (U.S.)
- Monthly Record of Meteorological Observations (Canada)

In addition, arrangements were made with the Meteorology Branch, Goddard Space Flight Center, to receive on loan North American Surface Charts (1200Z), published four times daily by the U.S. Department of Commerce. These charts proved invaluable for tracing the movement of air masses across the continent, an essential effort of this investigation to gauge lake ice and climate interdependence.

Surface charts were excellent media for observing highly transient weather patterns on a continental scale, but they were hardly adequate for examining subtle climatological variations at a regional level. For this purpose, a detailed meteorological record was required. To provide such a record, a region of the test site (i.e., Manitoba and western Ontario) was selected, because of the large data volume, and a subset of all weather stations within that region was identified. The 18 stations comprising the subset are displayed in Figure 2. Meteorological data in the form of daily extremes in air temperature were compiled for each station from the "Monthly Record of Meteorological Observations," and loaded into a magnetic tape file. The final data record spanned the ice years 1961, 1963, and 1972, those years for which transition zone observations were available. The application of this data is discussed in a latter section of this report.

2.4 ERTS IMAGERY PROCESSING

The Standing Order for this investigation specified one copy (9.5 in, positive, b/w transparency, each band) of all imagery taken over the test site regardless of cloud cover. Given the size of the test site, this translates into a prodigious quantity of imagery (~20,000 transparencies) over a complete ice year. Obviously, a well-organized handling procedure was required to assure that all imagery were processed quickly and efficiently while avoiding losses due to misplacement.



The key to a workable imagery handling system is a simple but accurate procedure for recording the imagery prior to filing. Swath dates can be recorded on an image log, but this supplies no information about areal coverage. For swath coverage a ground track map, such as that shown in Figure 3, was used. As indicated previously, the dotted lines on the map represent approximate ERTS-1 orbital traces, and the numbers indicate orbit days of the 18-day cycle. For this investigation cycle 1, day 1 was arbitrarily chosen as 6 August 1972. As an example of how the map is utilized, suppose a swath of imagery is received for 11 August 1972. The table at the bottom of the map indicates that this date corresponds to orbit day 6 of cycle 1 (see Figure 3). The geographical centerpoints of the first and last scenes of the swath may then be located on the map and plotted on orbit day 6.

The above recording procedure proved to be fast, accurate, and sufficient to meet the needs of this investigation. The system provided an easy means of obtaining a quick inventory of all imagery on file. The entire inventory covered by this report is presented in Appendix C. Those swaths in which ice observations were made are also differentiated.

In order to expedite the extraction of freeze/thaw information from the ERTS-1 imagery, a Lake Observation Data Sheet (LODS) was devised. As Figure 4 shows, the LODS consists of 9 variable fields:

1. <u>DATE</u>. The date on which the scene was taken. (Format: mmddyy, where mm = month; dd = day; yy = year).

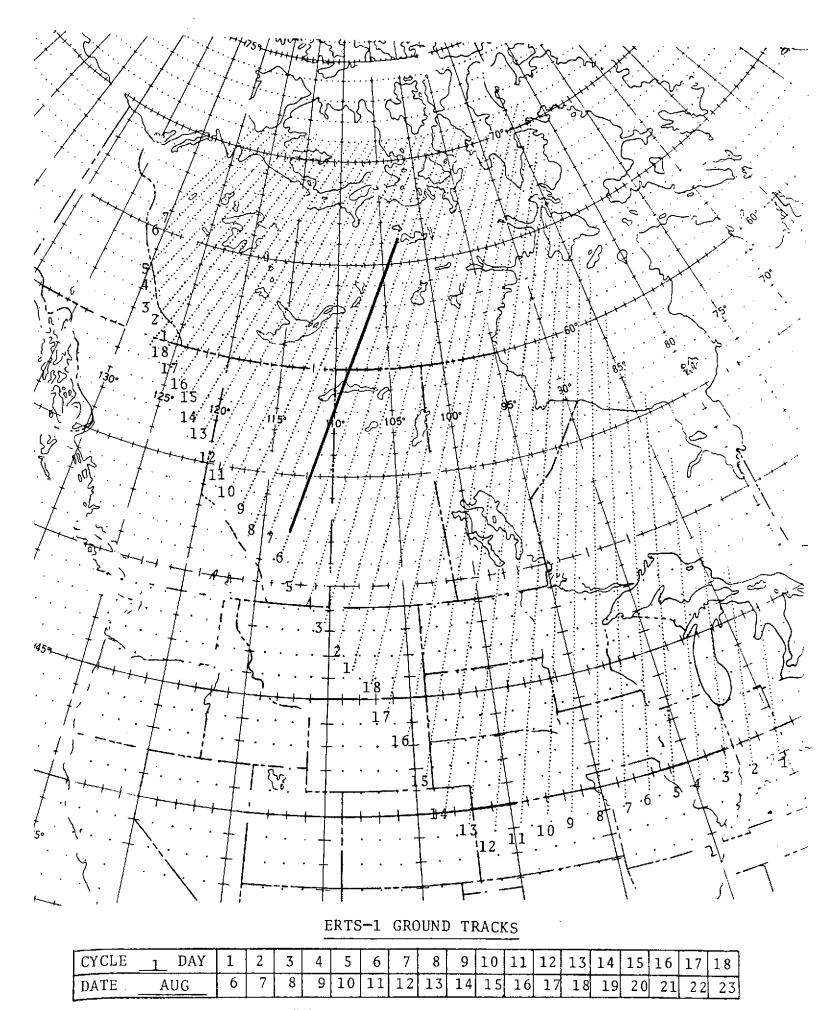


FIGURE 3. ERTS-1 GROUND TRACK MAP

LAKE OBSERVATION DATA SHEET

	V					- N	OBS	
DATE	IMAGE	LAKE NAME	ID CODE	LAT	LONG		ODE	COMMENTS
5	10	15 20 25	30 35	40	45	50		55 60 65 70 75 80
				1 1 1	1 1 1 1	, N,		
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FIGURE 4. LAKE OBSERVATION DATA SHEET

- 2. IMAGE. Image number. For example, if the ERTS image identification number is E-1004-16360-3, the image number would be the last 4 digits of the exposure time or 6360. The image number in conjunction with the date is sufficient to uniquely identify every scene used in this investigation.
- 3. LAKE NAME. Name of the lake in 16 digits or less.
- 4. <u>ID CODE</u>. Survey lake identification code in 6 digits or less.
- 5. <u>LAT</u>. Geographical latitude of lake. (Format: ddmm, where dd = degrees; mm = minutes).
- 6. <u>LONG</u>. Geographical longitude of lake. (Format: dddmm, where ddd = degrees; mm = minutes).
- 7. <u>S/P</u>. State/province in which lake is located. (Format: aaa, where aaa = 3 letter state/ province abbreviation; see Table 2.)
- 8. OBS CODE. Lake observation code. Details are provided in Table 3.
- 9. <u>COMMENTS</u>. Any subjective comments relative to the observation or image in 27 digits or less.

When making a lake freeze/thaw observation from an image, the analyst first located the lake on the annotated ONC maps. This task was relatively easy since the imagery and the maps are approximately equivalent in scale. If the lake was a survey lake, that is, if the map was annotated with the lake identification number, the analyst simply made an entry on the LODS. To be valid this entry need only contain the date, image number, lake ID code, and observation code.

Table 3. Lake Observation Code FREEZE/THAW CODES

FORMAT: abcc

where a = Cloud Type Indicator

A: No clouds in vicinity of lake
C: Cirrus - High level (20,000 feet
ice crystals giving the appearance of a fine veil. Will be
regarded as transparent.

F: Fog - Very low level coverage; resembles Stratus.

L: Multiple cloud layers.

S: Stratus - Solid deck of low level clouds; smooth in appearance.

Q: Cumulus - Convective, low level clouds; appear puffy

b = Cloud Cover Fraction

0-9: Lake free of cloud cover or shadows to lake 90% cloud covered.

N: Lake completely obscured by clouds; no ice state determination possible.

cc = Ice Cover Percentage

00-10: Percentage ice over - To range from lake completely ice free (00) to lake completely ice covered (10).

blank: No observation.

Should there be no entry on the ONC map, the analyst could create one by assigning a lake identification code, annotating the map, and filling in all information on the LODS exclusive of comments. Realize that any survey lake entering the system in this manner had an identification number ending in 0.

In addition to the above data gathering procedure, which may be described as discrete point observation, the analyst had the option to graphically record his interpretations on a map. This mode of data representation was extremely useful for directly monitoring freeze/thaw transition zone variations in time and space.

2.5 ERTS IMAGERY ANALYSIS

2.5.1 Lake Ice Observation

Straightforward manual photo interpretation was the method chosen for making lake ice observations. A qualitative comparison of 9.5 inch, bulk transparencies and 9.5 inch bulk prints revealed that either imagery format would be adequate for identifying the presence of ice. However, the superior resolution of the transparencies enabled smaller, finer features, such as fracture patterns, to be detected more readily. Consequently, transparencies were used throughout the analysis. Other than a light table and lens, the imagery were interpreted without the aid of special viewing devices, but, owing to the nature of the observation, this was not considered a drawback.

The primary observational objective of this investigation was to identify ice on the surface of any lakes appearing in an ERTS scene. Due to the high reflectivity of ice as opposed to water over that portion of the spectrum covered by

the ERTS sensors, an observation of ice state could generally be made without difficulty. Notable exceptions to this statement occurred when highly transparent "new ice" was formed on a lake or when water flooded the surface of partially thawed lake ice. In both of these cases any determination of lake ice condition at the scale of the ERTS imagery was highly suspect.

Any band of the ERTS multispectral scanner (MSS) would suffice for an initial estimation of the presence or absence of lake ice in a given scene. However, for more detailed, lake-by-lake observations one or more bands proved more useful than others. The relative utility of the various MSS spectral bands for detecting lake ice is suggested by the following table:

MSS Band Number	Spectral Range (microns)	Lake Ice Detectability
4	0.5 - 0.6	fair to poor
5	0.6 - 0.7	good to very good
6	0.7 - 0.8	good
7	0.8 - 1.1	good

The "green" band (4) was subject to atmospheric interference such as backscatter, and its signal tended to be attenuated by clouds. The "red" band (5) exhibited fair cloud penetration with proportionally less atmospheric interference. This band could "see" several meters into most natural waters, which occasionally enabled flooded ice surfaces to be discerned. Despite a high reflectivity for ice which often obscured surface features, band 5 was regarded as the optimum band for viewing lake ice. This judgement was corroborated by Barnes [7] from a study of sea ice. The "infrared" bands (6 & 7) were equally useful for lake ice viewing. Band 7 displayed the best cloud penetration of any band, however, the waveband could penetrate only a few millimeters into water.

Consequently, many flooded ice surfaces were undetectable in band 7. On the other hand, the lower reflectance of ice in the infrared enabled many ice features (e.g., fracture patterns, floes, leads) to be noted.

In summary, either band 5 or band 7 would be satisfactory for determining lake ice state during the freezing season. However, during the thawing season when considerable flooding takes place, band 5 is preferred (see Plates 1 and 2).

2.5.2 Survey Lake Observations

During the 1972 freeze season (Aug 24-Dec 16) over 1300 individual ice state observations of major survey lakes were made from ERTS-1 imagery. Almost an identical number were made during the 1973 thaw season (Mar 5-June 30).

Despite the large number of observations in absolute terms, when one considers that there were 357 study lakes, the number of ice state observations per lake over the entire 1972 ice year averaged less than eight. Thus, during the freeze season, for example, the ice state of any given lake could be determined only on about 3-4 different occasions. In reality, these few opportunities are quite reasonable, since the whole ice year was covered in approximately ten 18-day ERTS cycles (Appendix C); the maximum number of viewing opportunities for any lake, allowing for sidelap, would be about 20. Hence, 40 percent of all opportunities to observe survey lakes during the 1972 ice year were successful.

2.5.3 Problems of Analysis

Four problem areas associated with the ERTS system became apparent during the lake ice survey:

- cloud cover
- lake size
- reflectance
- satellite coverage

To a variable extent each problem area hampered the survey.

The question of cloud cover is a fundamental one, since the phenomenon being observed is dynamic and possibly related to enhanced cloudiness. Without doubt opaque cloud cover interfered with observations of lake ice condition. In some cases, when the clouding was of a high altitude, broken cirrus variety, an estimation of ice state was possible, but for the most part clouding resulted in gaps and uncertainties in the observation record. The problem was most acute during the 1972 freeze season, the November of which proved to be the cloudiest on record [8]. Cloud cover was much less extensive and pervasive during the 1973 thaw season.

Due to the resolution limits of ERTS imagery, there was a practical minimum lake size beyond which reliable estimation of surface characteristics by visual means became virtually impossible. This lower bound was estimated at about 2 square kilometers, or approximately the area of identifiable lakes on the ONC charts. Consequently, all lakes smaller than 2km^2 were effectively eliminated from the lake ice survey. This does not mean to infer that such lakes were undetectable; water bodies only a few acres in size can be distinguished on ERTS imagery [9]. However, detectability of ice cover during the critical freezing or thawing period becomes extremely uncertain for such small lakes.

Natural surface reflectance served as both an aid and deterrent in observing ice conditions. For instance, a partially ice-covered lake was indistinguishable from a sediment-laden, ice-free lake because of their similar reflective properties. Unless the ice was strongly reflecting, as

in the case with fresh snow cover, or the ice-water boundary was sharply defined and angular, the ice condition of the lake could not be determined. During the thaw season decaying ice appeared to reflect more strongly in all ERTS bands than freshly formed ice characteristic of the freeze season. This was probably due to the multiple reflecting surfaces of ice crystals in such ice as opposed to the relative transparency of new ice. On the whole, variable reflectance was less of an interpretation problem during the thaw season, although a fair number of uncertain observations were recorded throughout the ice year (see Plates 3 and 4).

A final, critical problem in viewing the ice condition of individual lakes proved to be the timeliness of satellite coverage. The freezing and thawing of lakes, except for the very largest ones (e.g., Great Slave, Manitoba), tend to be highly transient natural phenomena. Ice can appear or disappear from a lake surface in a matter of a few days or, on occasion, in a few hours if meteorological conditions are favorable [10]. With its 18-day repeat cycle ERTS was inadequate as a tool for observing the behavior of lakes during their abbreviated freezing and thawing periods. The satellite was most likely not to be over the right place at the right time. In the absence of ground truth (i.e., field and meteorological data) the freezing and thawing dates of particular lakes cannot be accurately determined solely from ERTS.

2.5.4 <u>Transition Zone Observations</u>

Although individual lake observations did not meet original expectations, transition zone observations largely exceeded those expectations (see Plates 3-5).

ERTS swaths in which the transition zone could be discerned are indicated in Appendix C. A signficant fraction of all available swaths contained useful information about the transition zone. The compilation and interpretation of that information is discussed in the following section.

SECTION 3.0 RESULTS OF INVESTIGATION

3.1 FREEZE SEASON - AUTUMN 1972

The freeze portion of the 1972 ice year required approximately 100 days (i.e., early September to early December). During that time the ERTS-1 covered the test site in five 18-day cycles. For the first time the behavior of the lake freeze transition zone could be documented over extensive spans of space and time.

3.1.1 Transition Zone Migration

A great deal of the incentive for this study resulted from an aerial lake ice survey by Ragotzkie and McFadden [11]. One of the principal results of that work was the verification of a transition zone (TZ), called the lake freezing zone, south of which all lakes are open (ice-free) and north of which all lakes are closed (frozen over). The lake freezing zone reflects the role morphometric factors play in the freezing of lakes. Shallow lakes have less heat to give up to the atmosphere in comparison with deep lakes. Therefore, shallow lakes respond more readily to weather perturbations and freeze over sooner than deep lakes. As a result, Ragotzkie and McFadden referred to the northern boundary of the transition zone as the "deep lake freeze line" and the southern boundary as the "shallow lake freeze line." For purposes of this report, however, the two boundaries will be called, simply, the northern transition zone boundary (NTZ) and the southern transition zone boundary (STZ) respectively.

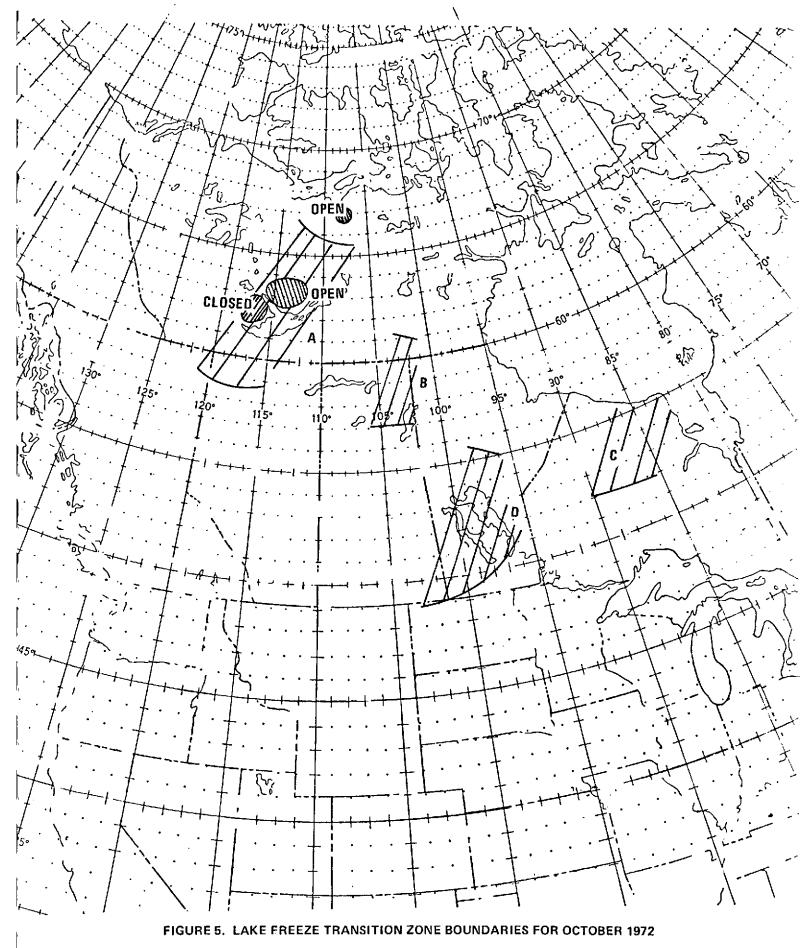
Observations of the transition zone by ERTS-1 during the month of October 1972 are summarized in Figure 5. The early October TZ (A, Figure 5) exhibited a complexity not obvious in subsequent observations. Although the NTZ lay about 75 km to the south, a small area of lakes just to the southeast of Bathurst Inlet was completely ice free. This anomalous lake group apparently freezes later than other lakes in the vicinity; the cause may be due to the moderating influence of unfrozen saltwater Bathurst Inlet.

The influence of a large, open water body was also evident near Great Slave Lake. Early October weather records show that stations on or near the lakeshore had minimum temperatures ranging 3 to 10°F higher than another station at the same latitude about 100 miles to the west. The ERTS imagery agreed with these data by showing a large area of open lakes in the pocket formed by North Arm and MacLeod Bay, whereas all lakes immediately west of Great Slave were frozen over.

By October 18 (B, Figure 5) the NTZ had moved about 480 km to the south, implying a migration rate of almost 100 km/day, assuming, of course, that the transition zone boundaries are longitudinally invariant. Such an assumption is not justifiable; this point will be discussed more fully in a subsequent section.

Only the STZ was visible on the mid-October imagery (C, Figure 5), and even this boundary was very uncertain due to the considerable cloud cover. However, the interpretation was included because this represented the only TZ observation from the extreme eastern portion of the test site for the month of October.

Although November 1972 has been characterized as the cloudiest November on record [8], the transition zone was visible on three separate occasions (Figure 6).



A. 07 OCT 72 – 13 OCT 72

B. 18 OCT 72

C. 22 OCT 72 -- 23 OCT 72

D. 28 OCT 72 - 01 NOV 72

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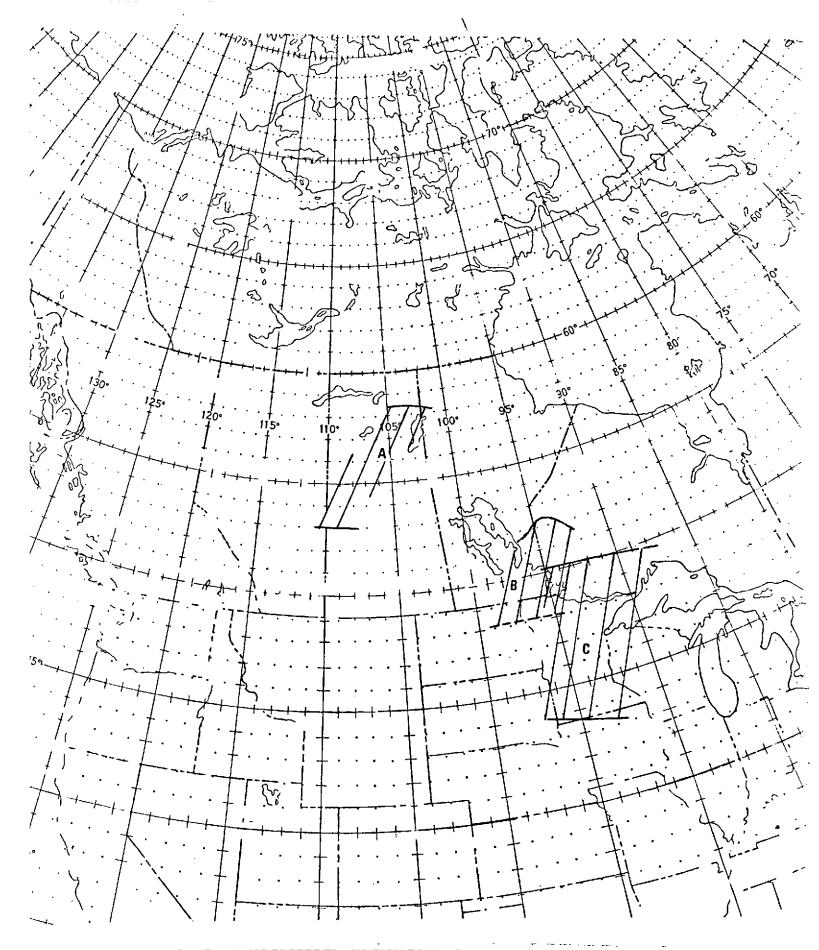


FIGURE 6. LAKE FREEZE TRANSITION ZONE BOUNDARIES FOR NOVEMBER 1972.

- A. 05 NOV 72 06 NOV 72
- B. 13 NOV 72 15 NOV 72
- C. 28 NOV 72 01 DEC 72

The early November TZ (A, Figure 6) represented a marked discontinuity in the southward moving trend prevalent throughout October. In this case the NTZ was located just north of Reindeer Lake or roughly 350 km north of the previously sighted TZ position. Since this was not a period of above normal temperatures, the obvious conclusion must be that the transition zone varied latitudinally as a function of longitude.

By late November the TZ had extended well south into the United States (C, Figure 6), although the NTZ had migrated only about 200 km since the previous sighting. A migration rate of only 15 km/day is inferred from this observation. This value is probably realistic since it was derived from overlapping transition zones. The late November imagery represent the longest, most continuous, cloud-free view of the transition zone for the entire freeze season.

The first of December 1972 marked the beginning of a 14 day cold period during which the daily average temperature was consistently below zero in the TZ area. Weather stations in north-central United States and south-central Canada recorded their lowest temperature readings ever for this period [8]. The intense cold was sufficient to effectively obliterate the transition zone. Observations during the month of December revealed a small number of open lakes and reservoirs scattered over the United States portion of the test site, but these were assumed anomalous.

3.1.2 Comparison With Ground Truth

Due to the size of the test site and the logistics involved, a ground truth support program was not instituted for this study. However, the exact freeze dates of numerous Canadian lakes were acquired from the Field Meteorological Systems Branch, Atmospheric Environment Service of Canada. These dates were more than adequate for checking against transition zone observations.

The freeze dates of the ground truth lakes are superposed on the ERTS-derived transition zone locations in Figures 7 and 8. If transition zones are located properly, freeze dates north of the zone should precede the period of observation, whereas freeze dates south of the zone should post-date the observation period. An examination of Figures 7 and 8 reveals that the above criteria are satisfied in every case except two.

The first exception is Meadow Lake (030454) (Figure 7) whose October 8 freeze date was 12 days earlier than the previous recorded early freeze for this lake. A possibility exists that the Meadow Lake freeze date was incorrectly reported. The other exception is Island Lake (040414) (Figure 8) with a November 15 freeze date. This date was 12 days earlier than the lake's only other recorded freeze date, but the annual variation in freezing times can often exceed that amount. In this case the freeze date and imagery interpretation may both have been correct. This is because the satellite pass (Appendix C) on which both Island Lake and the transition zone were recorded took place on November 15, Island Lake's freeze date. Hence, on November 15 the transition zone could well have migrated south of Island Lake, as the interpretation indicates.

Other than the minor exceptions just discussed, the agreement between transition zone positions, determined solely from ERTS imagery, and lake freeze dates, based on ground observations, is excellent.

3.1.3 <u>Comparison with Previous Studies</u>

The only work comparable to this investigation was that of Ragotzkie and McFadden [11]. Many of the findings of this earlier study were combined into a later, more comprehensive report by McFadden [12]. The combined work contained observational data from two ice years, 1961 and 1963. Since the

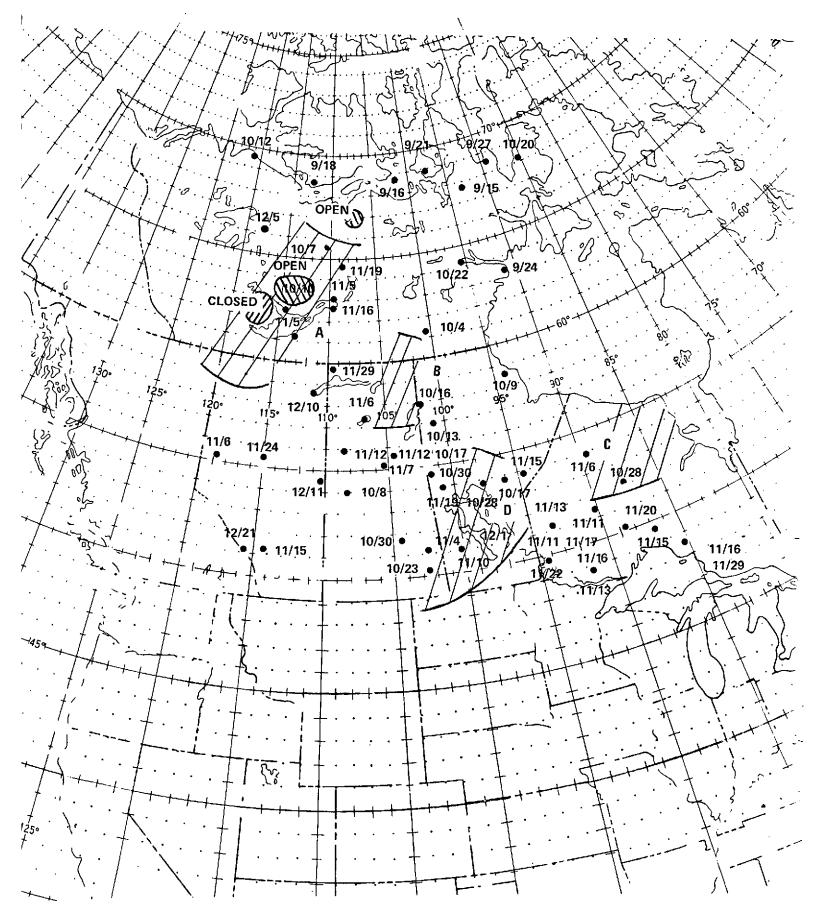


FIGURE 7. GROUND OBSERVED LAKE FREEZING DATES AND TRANSITION ZONE POSITIONS FOR OCTOBER 1972.

- 07 OCT 72 13 OCT 72 A.
- B. 18 OCT 72
- 22 OCT 72 23 OCT 72 28 OCT 72 01 NOV 72 C.
- D.

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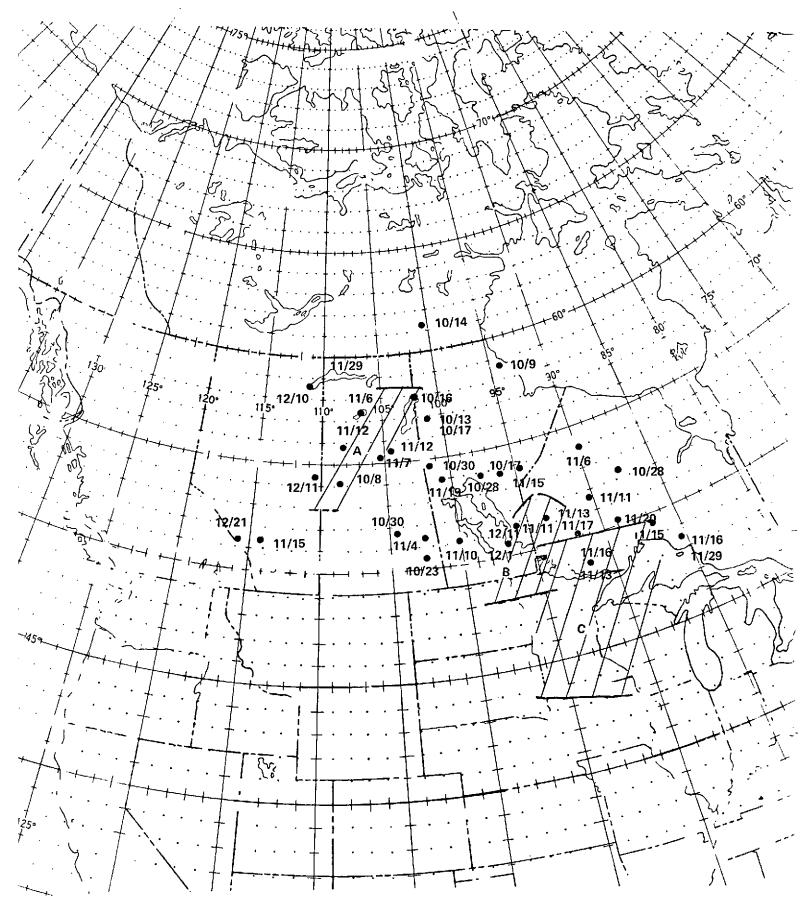


FIGURE 8. GROUND OBSERVED LAKE FREEZING DATES AND TRANSITION ZONE POSITIONS FOR NOVEMBER 1972.

- A. 05 NOV 06 NOV 72
- B. 13 NOV 15 NOV 72
- C. 28 NOV 01 DEC 72

TZ mapped by McFadden during these years lay within the designated test site for this study, similar data sets from each study were compared.

During 1961, Ragotzkie and McFadden were able to observe the transition zone on three separate occasions:
(1) October 24-26, (2) November 3-5, and (3) November 7-10.
The positions of the zone on the first two of these occasions are shown in Figure 9, along with positions determined by this investigation at comparable times during the freeze season.
Considerable overlap exists between McFadden's zones labeled 1 and 2 and that labeled B from this study, suggesting that 1961 and 1972 had quite similar freeze seasons.

A rather different situation prevailed in 1963 with which the 1972 comparisons for October are made in Figure 10 and for November in Figure 11. Both of these figures show that at similar times the TZ remained farther north in 1963 than in 1972. This discrepancy is particularly striking for the October 18 data. Whereas the 1961 and 1972 freeze seasons experienced equivalent weather (i.e., mean monthly temperature for October: 4-8°F below normal), the 1963 freeze season experienced appreciably warmer weather at equivalent times (i.e., mean monthly temperature for October: 4-10°F above normal).

Despite the large difference in October mean air temperature between 1963 and 1972 (i.e., 8-18°F), the transition zones for those two years differed by only 2-3 degrees of latitude (Figure 10). These results suggest that the freezing of lakes is relatively insensitive to short-term (< 1 month) climatic variations.

The comparative results also indicate a longitudinal dependence of TZ position as well as the obvious latitudinal one. McFadden's observations and those made during this study (Figures 9-11) exhibit a definite northwesterly trend

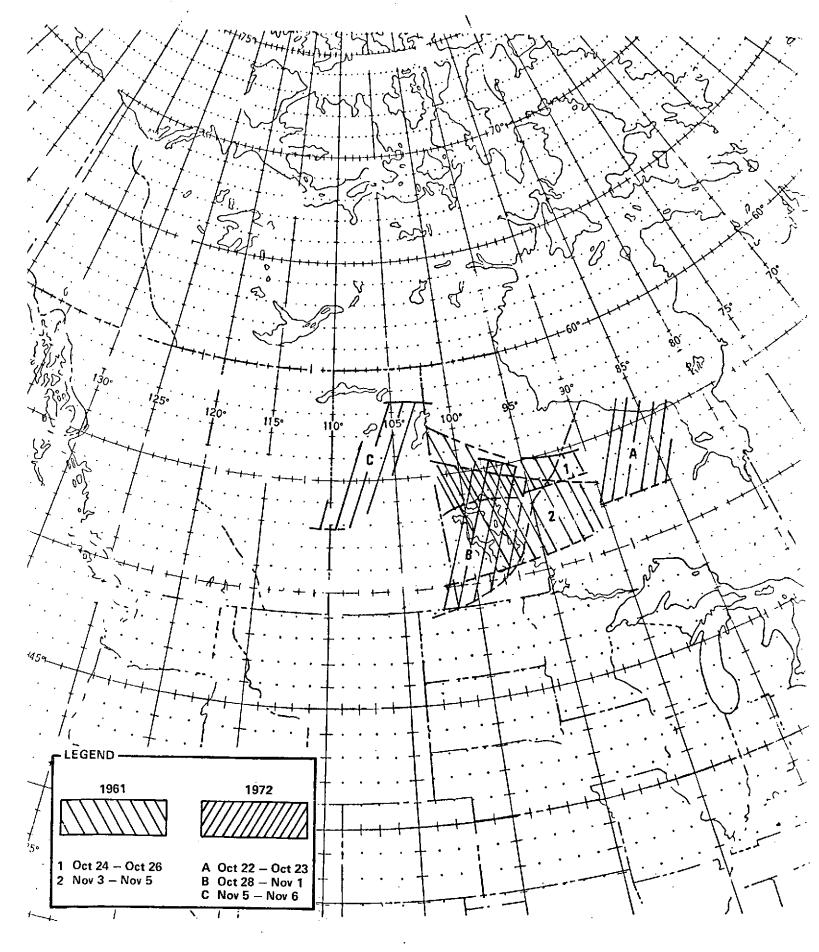


FIGURE 9. COMPARISON OF TRANSITION ZONE OBSERVATIONS MADE IN 1961 (REFS. 11,12) AND 1972 (THIS STUDY)

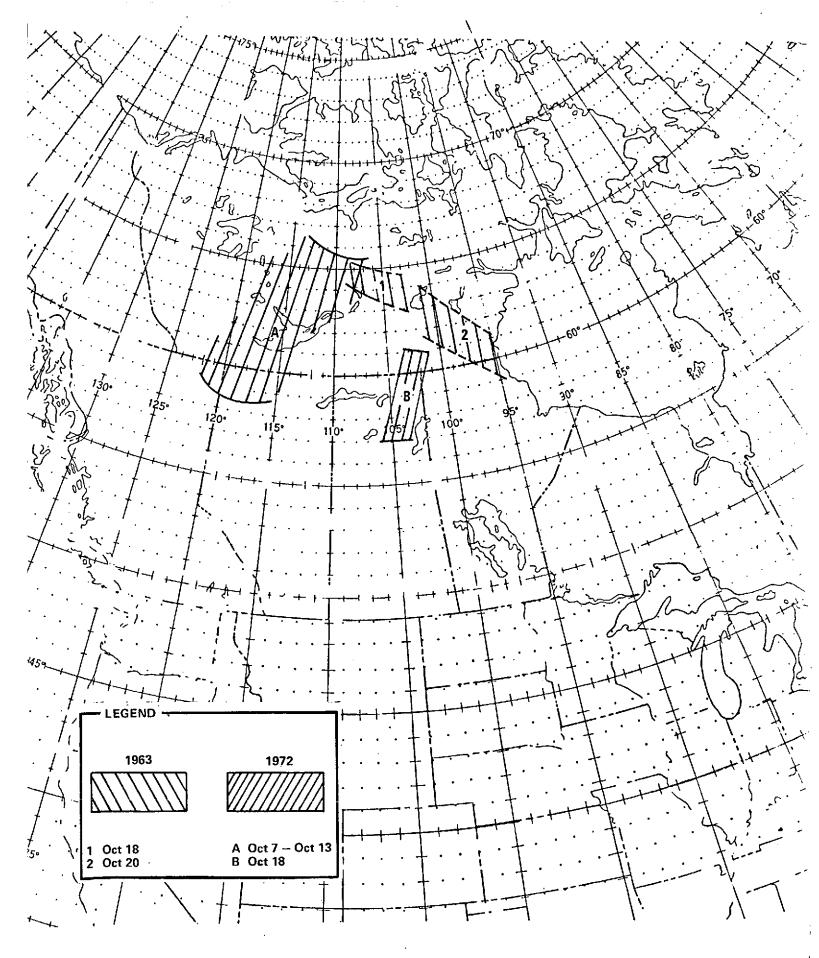


FIGURE 10. COMPARISON OF OCTOBER TRANSITION ZONE OBSERVATIONS MADE IN 1963 (REF. 12) AND 1972 (THIS STUDY).

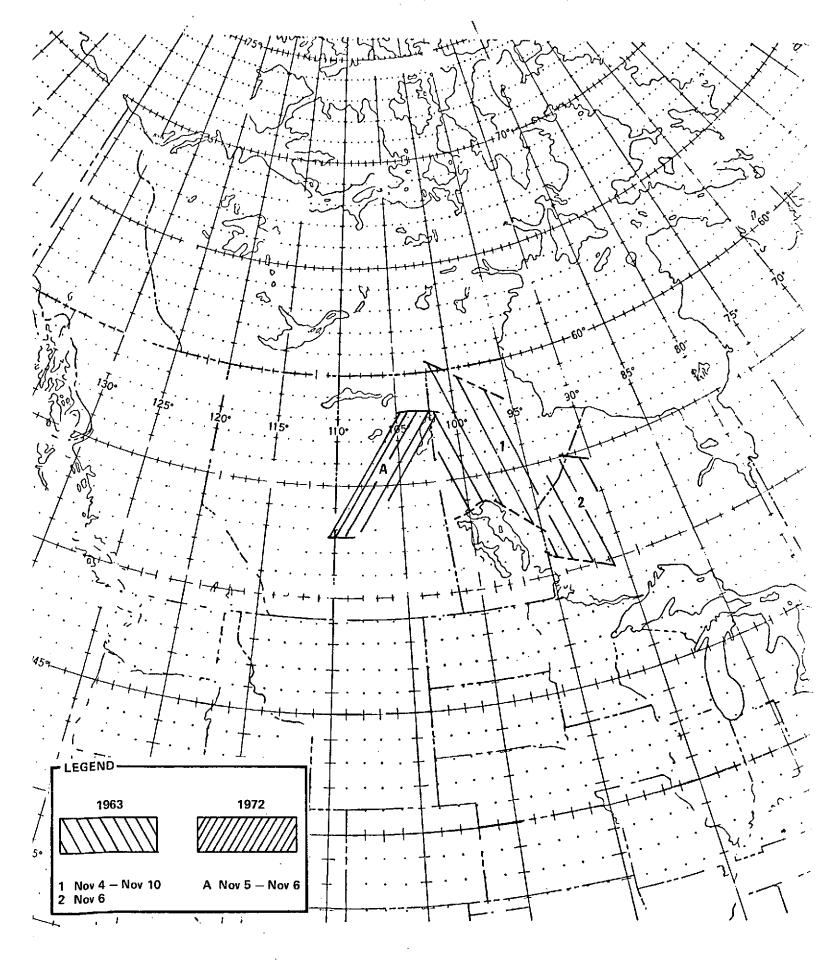


FIGURE 11. COMPARISON OF NOVEMBER TRANSITION ZONE OBSERVATIONS MADE IN 1963 (REF. 12) AND 1972 (THIS STUDY)

for the transition zone in general and the NTZ in particular. This trend breaks down only for the region south of Lake Manitoba. The northwestern direction for the NTZ was readily apparent from the ERTS imagery even though satellite coverage shifts westward on a daily basis, and continued freezing would tend to move the NTZ southward.

The unidirectional orientation of the transition zone over much of the continent can only be attributed to the prevailing autumn climate of the region. This orientation agrees with the general trend of weather systems during the autumn months (see next section). Similarly, the tree line follows the same northwest-southeast bearing. The fact that both of these phenomena independently exhibit the same orientation lends credence to the proposition that general climatology rather than latitude controls the overall trend of the transition zone, and temporal perturbations on that climatology are responsible for any variations in the migratory behavior of the zone.

3.1.4 Comparison With Weather Systems

As stated previously, a primary objective of this investigation was to identify any correlations between the freeze/thaw cycles of lakes and regional weather variations. The ultimate goal of such an effort would be to establish, verify, and explain any interrelationships which may exist. Consequently, a major effort was made to compare the transition zone as observed from ERTS imagery with both local and regional weather data.

Cyclonic and anticyclonic activity was examined in detail for the month of October 1972 using North American Surface Charts (1200Z GMT) compiled by the U.S. Weather Service. The daily position of each pressure center was marked on a base map over a period of several days, enabling

the temporal variation of each weather system to be defined. Migration patterns for the period October 6 through October 15 are shown in Figure 12; the observed position of the TZ for that period is also shown. Nearly all pressure centers exhibit the general northwest to southeast motion over the test site that is typical for the time of year. Cyclonic activity predominated in the northern portion of the test site for the first half of the month. Although a polar continental (pC) high did form in Alaska on October 8, the system adopted a southerly heading and skirted the lakes region of central Canada. During the period the transition zone, especially in the vicinity of Great Slave Lake, appeared to act as a source area or area of intensification for upper latitude cyclones (Figure 12).

The motion of weather systems for the period October 15 through October 18 is displayed in Figure 13. This short period was dominated by an intense polar-outbreak high which moved southward across central Canada bringing very cold temperatures to the test site.

A return to more typical pressure center migration patterns is shown in Figure 14 which covers the period October 18 through October 24. During this time, apparently no major weather system traversed the transition zone, although a large pC high followed a path closely paralleling the estimated NTZ for the period.

The end of October (October 24-November 1) was meteorologically complex (Figure 15). Every major pressure system displayed an abrupt shift in its direction of motion from southeast to southwest before resuming a normal migration pattern. During the period another pC high paralleled the NTZ, but seemingly the pressure center always remained north of the transition zone (Figure 15). On the other hand, an upper latitude cyclone passed through the zone in the same fashion as similar cyclones had earlier in the month (Figure 12).

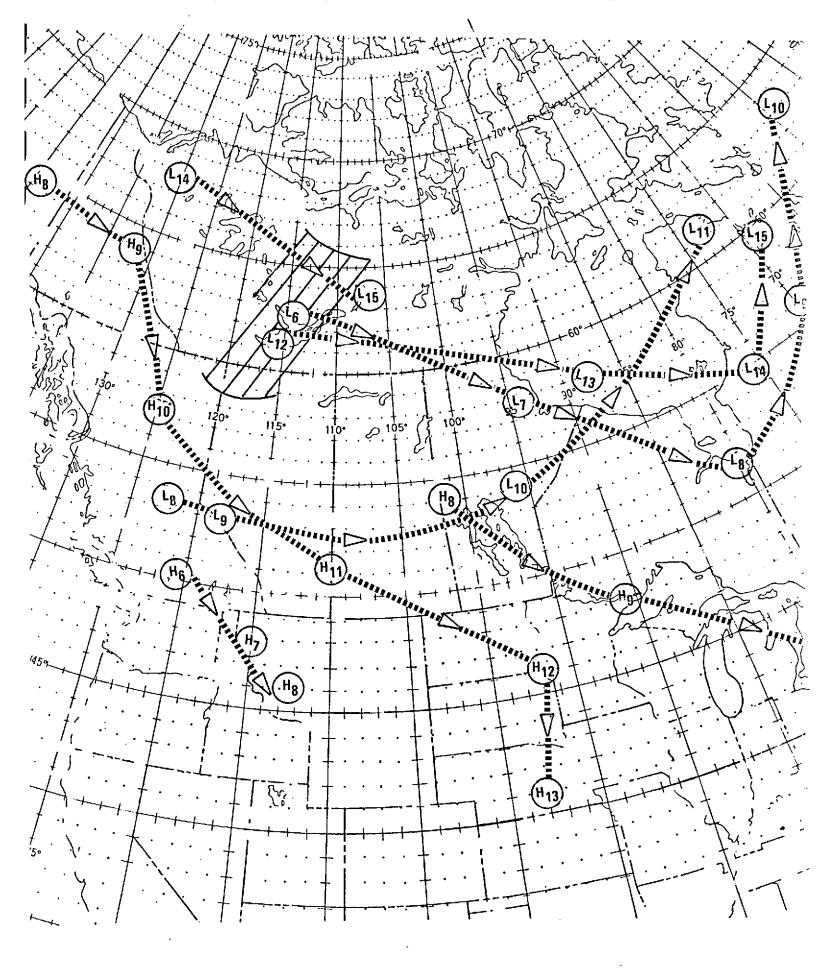


FIGURE 12. MOVEMENT OF AIR MASSES IN CENTRAL NORTH AMERICA BETWEEN 06 OCT 72 AND 15 OCT 72. (H = High Pressure Mass; L = Low Pressure Mass; Subscript Indicates Day of Month; Observed Transition Zone Indicated)

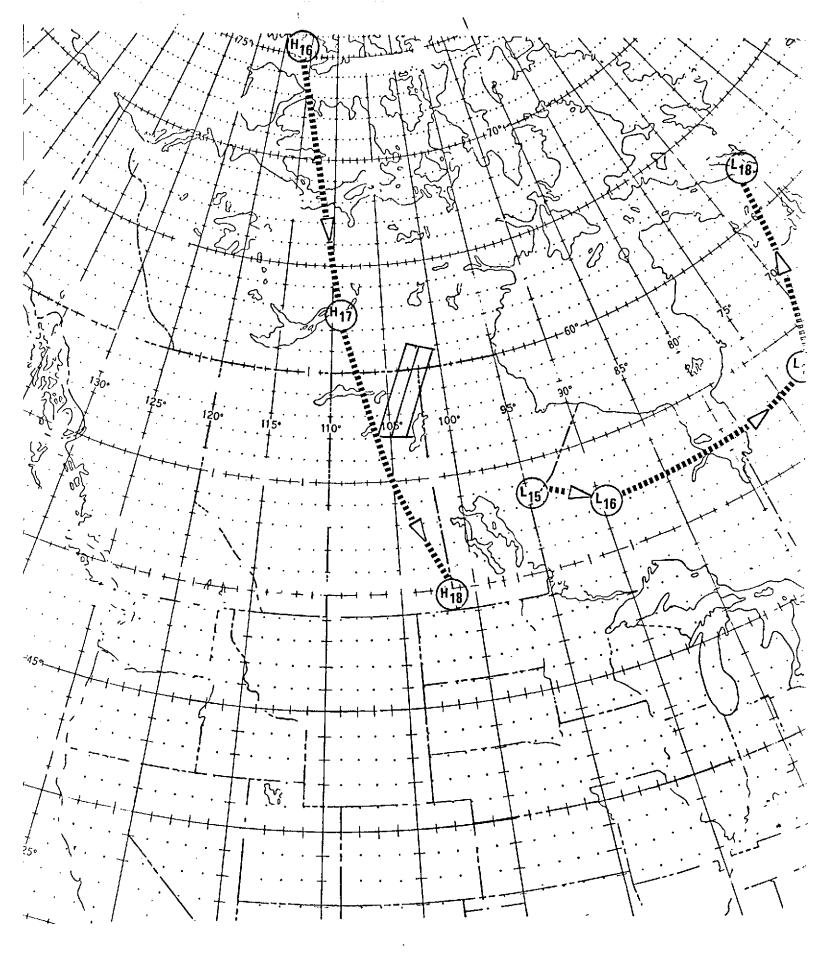


FIGURE 13. MOVEMENT OF AIR MASSES IN CENTRAL NORTH AMERICA BETWEEN 15 OCT 72 AND 18 OCT 72. (H = High Pressure Mass; L = Low Pressure Mass; Subscript Indicates Day of Month; Observed Transition Zone Indicated)

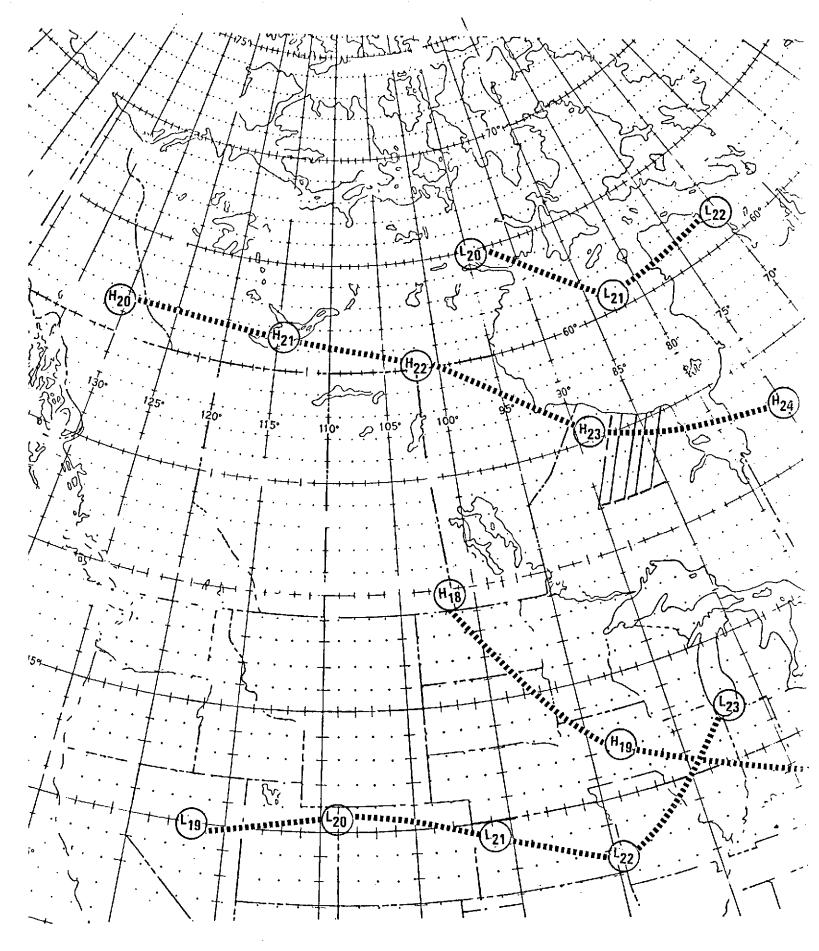


FIGURE 14. MOVEMENT OF AIR MASSES IN CENTRAL NORTH AMERICA BETWEEN 18 OCT 72 AND 24 OCT 72. (H = High Pressure Mass; L = Low Pressure Mass; Subscript Indicates Day of Month; Observed Transition Zone Indicated)

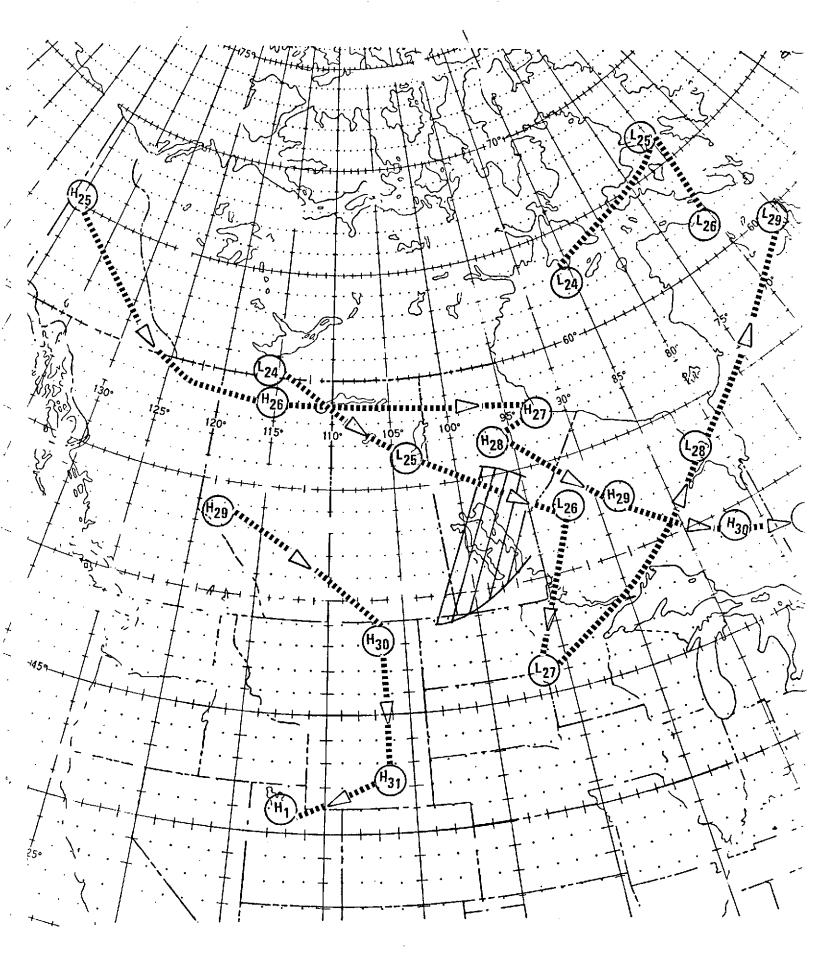


FIGURE 15. MOVEMENT OF AIR MASSES IN CENTRAL NORTH AMERICA BETWEEN 24 OCT 72 AND 01 NOV 72. (H=High Pressure Mass; L = Low Pressure Mass; Subscript Indicates Day of Month; Observed Transition Zone Indicated)

The motion of pressure centers within the study area for the period October 31 through November 4 is depicted in Figure 16. A polar continental anticyclone passed north of the transition zone, the pressure center having moved along the northern transition zone boundary.

The period November 10 through November 18 shown in Figure 17 represents a more complex situation. During this time an anticyclonic system moved obliquely across the transition zone, but the movement was sporadic and irregular. There remains some question as to the type of anticyclone represented since weather data for the week prior to November 10 were missing. Doubtless a polar continental anticyclone did cross central Canada on November 15-16 (Figure 17). However, this system moved through southern Alberta and Saskatchewan, well to the west of areas characterized by large populations of lakes.

The final case for comparison covers the period November 23 through December 6 (Figure 18). During this period the transition zone ceased to exist as a well defined region of frozen-unfrozen lakes and became instead scattered clusters of open or partly open lakes surrounded by completely frozen lakes. The rapid breakdown of the transition zone can probably be attributed to the exceptionally cold temperatures that characterized this particular time. The weather systems traced in Figure 18 are characteristic of extreme conditions, especially the very large polar cyclone centered over Hudson Bay. This system brought the coldest temperatures for November to south-central Canada and north-central United States [8].

The comparison between the freeze transition zone as determined from ERTS and the movement of pressure centers (Figures 12-18) has produced some remarkable consistencies:

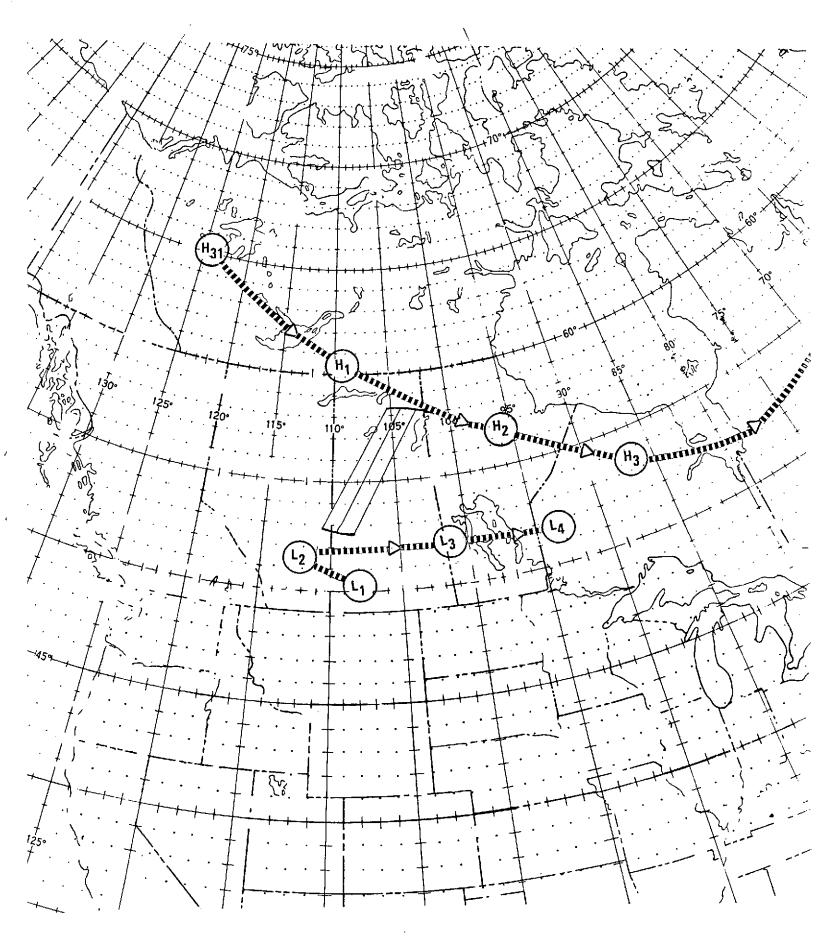


FIGURE 16. MOVEMENT OF AIR MASSES IN CENTRAL NORTH AMERICA BETWEEN 31 OCT 72 AND 04 NOV 72. (H = High Pressure Mass; L = Low Pressure Mass; Subscript Indicates Day of Month; Observed Transition Zone Indicated)

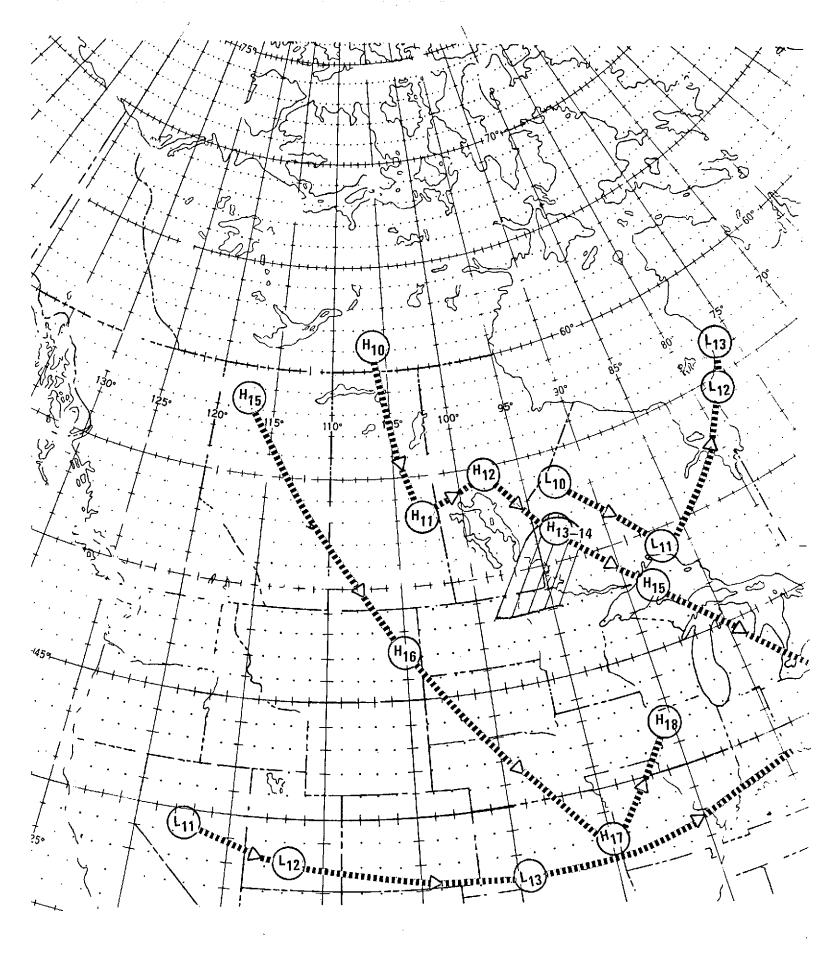


FIGURE 17. MOVEMENT OF IN MASSES IN CENTRAL NORTH AMERICA BETWEEN 10 NOV 72 AND 18 NOV 72. (H = High Pressure Mass; L = Low Pressure Mass; Subscript Indicates Day of Month; Observed Transition Zones Indicated)

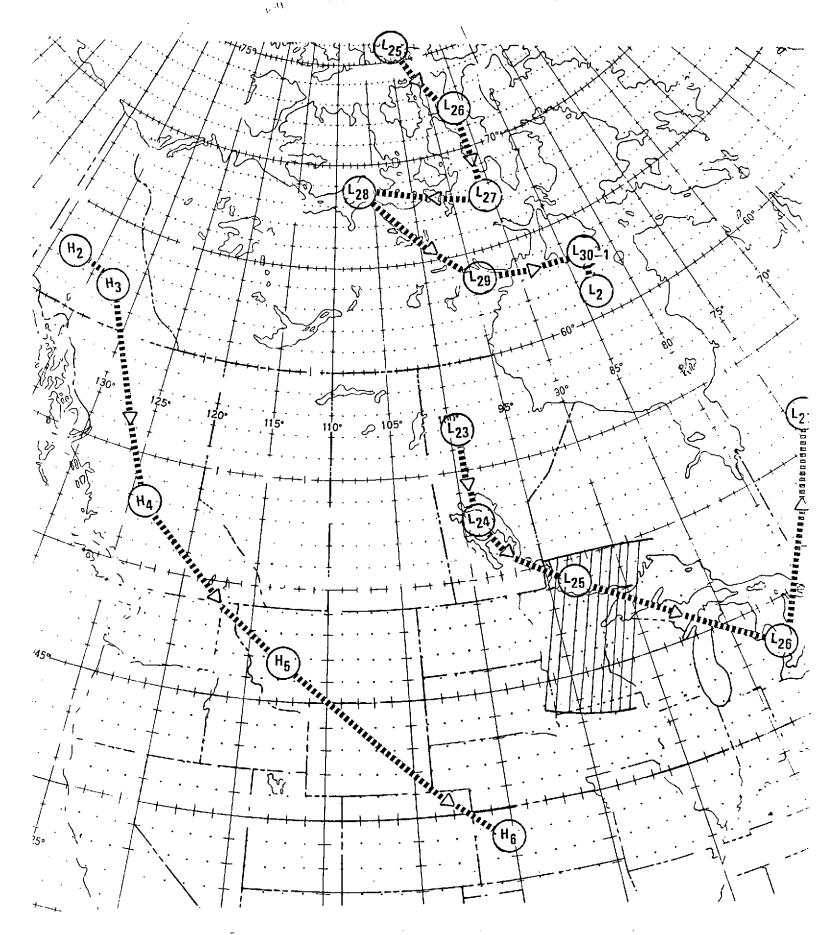


FIGURE 18. MOVEMENT OF AIR MASSES IN CENTRAL NORTH AMERICA BETWEEN 23 NOV 72 AND 6 DEC 72. (H = High Pressure Mass; L = Low Pressure Mass; Subscript Indicates Day of Month; Observed Transition Zone Indicated)

- Many polar continental cyclones originate in and/or travel along the trend of the transition zone.
- Polar continental anticyclones fail to cross the transition zone.
- Polar outbreak anticyclones pass directly across the transition zone without undergoing any apparent change.

These findings are wholly in accord with intuitive expectations regarding the ability of the transition zone to influence regional weather conditions. Namely, that as a source of relatively abundant heat and water vapor resulting from vigorous pre-freeze lake cooling, the transition zone would tend to strengthen cyclonic systems and weaken anticyclonic systems. During the 1972 freeze season the transition zone was not only the favored migration route for upper-latitude continental cyclones, but in no instance did polar continental anticyclones traverse the zone.

At this juncture it must be emphasized that the pressure centers plotted in Figures 12-18 do not reflect the total areal extent of these air masses. Certainly large portions of polar continental highs did cover the transition zone. Be that as it may, the consistencies of air-mass movements relative to the transition zone do suggest a strong interdependence, at least for the 1972 freeze season.

3.1.5 Comparison With Meteorological Data

Besides influencing the paths of weather systems across central North America, the transition zone may modify or otherwise affect the magnitude and distribution of important climatological parameters such as temperature and wind vector. Intuitively the transition zone represents a region of considerable convective turbulence, greater than average cloud cover, and above normal temperatures and precipitation. These conditions are a consequence of the flux of large quantities of heat and water vapor from rapidly cooling lake surfaces to the lower atmosphere; they should be amenable to testing by local and regional weather data, as discussed below.

3.1.5.1 Pressure (Intensification)

An analysis of the low pressure system traversing the transition zone during the period October 6-8 (Figure 12) shows that the system underwent considerable intensification. The system's minimum pressure decreased by 20 mb while in transit over the TZ [13]. Precipitation associated with this storm showed a definite increase with time: the maximum amounts were found in northwest Ontario, immediately south of the TZ. The transition zone could have played a role in the deepening of this storm and in the increased precipitation, but the proximity of Hudson Bay (Figure 12) may have been the predominant factor.

The influence of Hudson Bay can be inferred by the observed pressure intensification of all low pressure systems shown in Figure 12. Table 4 gives the pressure center minimum for each of these systems as a function of time. As previously described, pressure system 1 attained a 20 mb drop while migrating along the transition zone. Pressure system 2, which

Table 4. Cyclonic intensification through the transition zone for early October 1972 (see Figure 12).

(Pressure center minima given in millibars; data taken from [13].)

		Low Press	ure System	
<u>Date</u>	<u>1</u> ·	<u>2*</u>	3	4
6	999	-		
7	992			
8	979	1007		
9	967	994		
10	972	1001		
11		994	-	
12		· 	1007	
13		-	1005	
14		- 	996	1014
15		-	995	1003
	6 7 8 9 10 11 12 13	6 999 7 992 8 979 9 967 10 972 11 12 13 14	Date 1 2* 6 999 7 992 8 979 1007 9 967 994 10 972 1001 11 994 12 13 14	6 999 8 979 1007 9 967 994 11 994 12 1007 13 1005 14 996

^{*} Pressure system 2 is assumed to pass south of the transition zone.

remained south of the TZ while crossing central North America, actually weakened on October 10; however, after crossing Hudson Bay the system reintensified by 7 mb. Pressure system 3 traveled rapidly through the TZ without undergoing any apparent change; after crossing Hudson Bay the system had intensified by 9 mb. Pressure system 4, which remained entirely within the transition zone, intensified by 11 mb.

An examination of cyclonic systems for the remainder of October and November revealed a similar intensification pattern:
(a) those systems moving along the TZ intensified by about 10 mb, (b) crossing Hudson Bay produced an intensification of about 10 mb or less, and (c) low pressure systems outside the TZ experienced erratic pressure changes with net decreases of less than 10 mb. On the basis of these results, the transition zone apparently influenced cyclonic intensification as well as direction of flow.

Anticyclonic intensification offered a less consistent picture for the 1972 freeze season. Several polar continental highs whose centers passed just to the north of the TZ actually intensified (i.e., increased maximum pressure). No systematic variations in pressure change were observed in any of the anticyclones whose movements were tracked.

3.1.5.2 Precipitation and Dew Point

In order to estimate the transition zone's effect on precipitation, weather data from meteorological stations were combined and averaged over relatively small time intervals. Nine stations were selected at random for each averaging interval: 3 north of the TZ, 3 within the TZ, and 3 south of the TZ. Averaging intervals were chosen to coincide with known positions of the transition zone, leading to small gaps in the record.

Consistent trends in precipitation were not apparent from the short-term averaged data; however, the grand average showed that somewhat less precipitation was recorded in the transition zone (0.20 in) as opposed to areas both north (0.28 in) and south (0.25 in). This result is in agreement with the previous intensification studies which suggested that the TZ served as a source region for cyclonic storms; moisture accumulated from lakes within the TZ would be released outside the zone.

In addition to average precipitation values, time-averaged dew points and dew point temperature differences were also calculated for certain weather stations during the month of October. In almost every case the dew point temperature differences were smaller north of the transition zone, indicating that this was the region of moister air. However, this result could well have been an artifact of the data since only minimum temperature data from the North American Surface Charts were available to make the calculation. Radiational cooling effects, especially from snow and ice cover north of the TZ, would tend to artificially lower the dew point temperature difference.

3.1.5.3 Cloud Cover

Quantitative records of cloud cover were not available from the weather data base used in this investigation. However, some qualitative estimates of clouding can be made from the ERTS imagery of the study area. ERTS data were collected for approximately 40% of all possible scenes during the 1972 freeze season. Assuming that cloud cover was the principal constraint in taking imagery, this estimate gives some indication of the effect cloud cover can have during the freeze season.

Scattered views of the freeze transition zone have corroborated heavy cloud cover over the TZ, especially in the vicinity of the southern boundary. However estimates of cloud cover percentage both within and outside the TZ were not made.

3.1.5.4 Temperature

The relationship of air temperature, particularly running mean air temperature, to the migration of the transition is discussed in considerable detail in a later section of this report.

3.1.5.5 Wind

The predominant surface wind patterns of central Canada were examined to determine whether there exists a correlation with TZ location and movement. Monthly prevailing wind directions during 1972 for selected Canadian stations are depicted in Figures 19-22. The most consistent feature of these data is the regular northwesterly wind direction, especially north of 55°N latitude and around Hudson Bay. This trend reflects the general orientation of the TZ and the flow of air masses through the region. Similarly the tendency for the transition zone to assume more of a east-west pattern in western Ontario is largely corroborated by the wind data. Unfortunately the resolution of the data in time and space is insufficient to attempt a comparison with TZ migration trends.

As an aside, two interesting mesoscale meteorological phenomena are manifest by the wind data. In October (Figure 20) all four weather stations located on the shores of Great Slave Lake had offshore prevailing winds. In all liklihood such winds were probably a consequence of convective turbulence

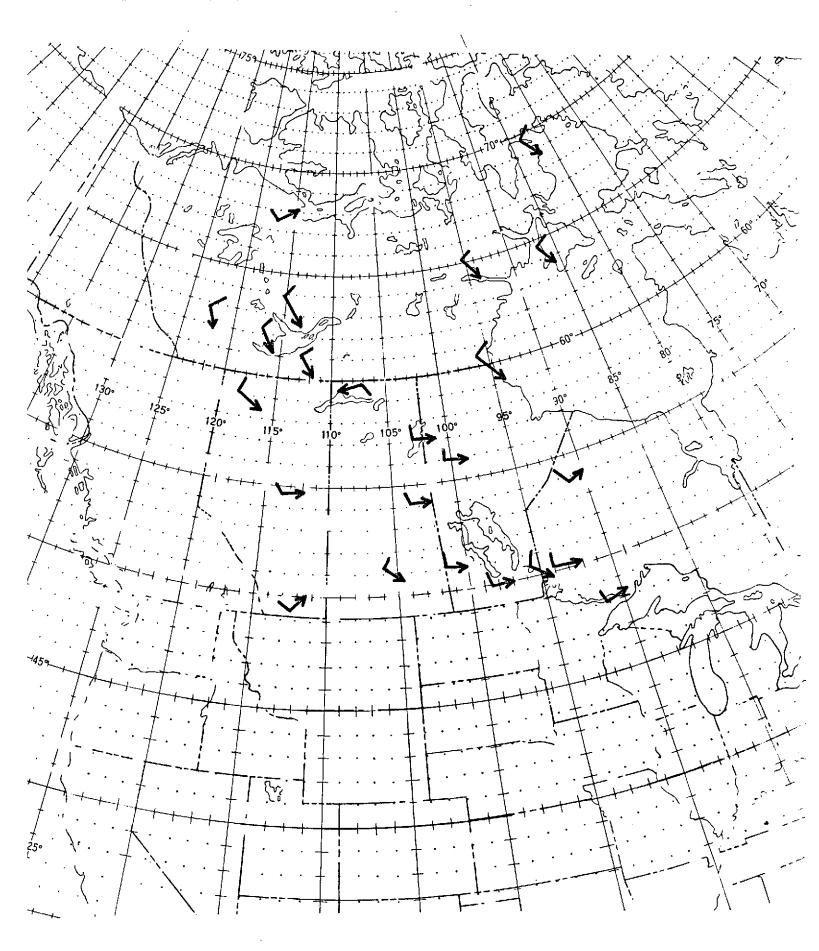


FIGURE 19. PREVAILING WIND DIRECTIONS FOR THE MONTH OF SEPTEMBER 1972. (ARROWS INDICATE DIRECTION TO WHICH WIND IS BLOWING.)

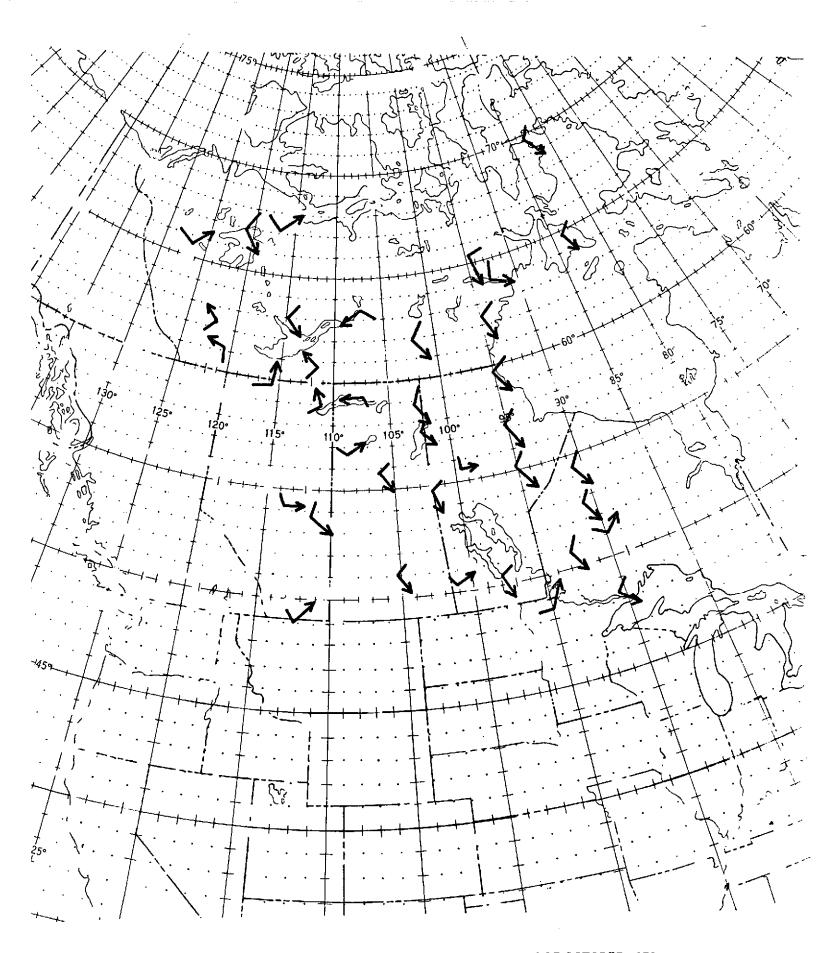


FIGURE 20. PREVAILING WIND DIRECTIONS FOR THE MONTH OF OCTOBER 1972. (ARROWS INDICATE DIRECTION TO WHICH WIND IS BLOWING.)

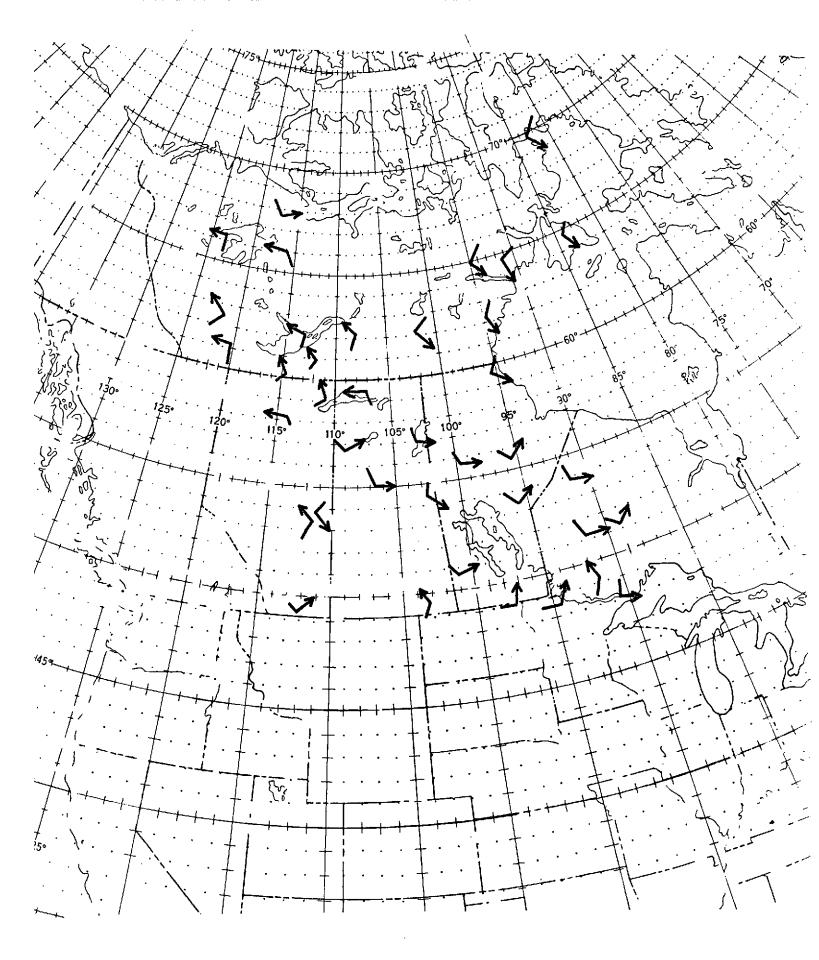


FIGURE 21. PREVAILING WIND DIRECTIONS FOR THE MONTH OF NOVEMBER 1972. (ARROWS INDICATE DIRECTION TO WHICH WIND IS BLOWING.)

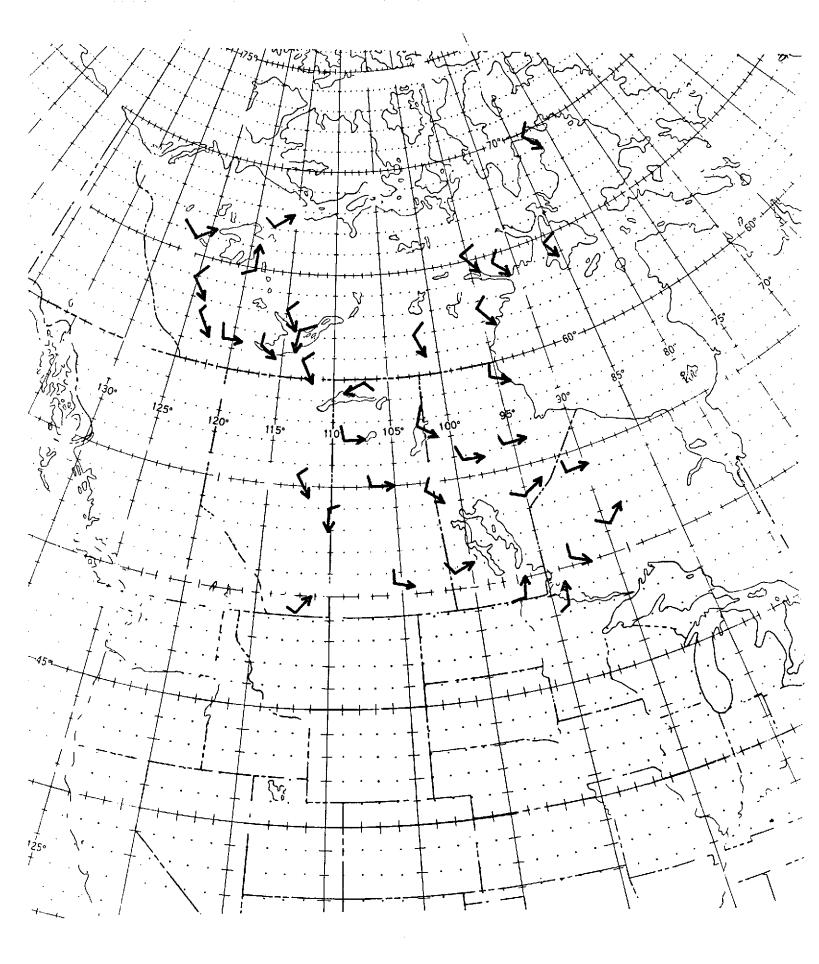


FIGURE 22. PREVAILING WIND DIRECTIONS FOR THE MONTH OF DECEMBER 1972. (ARROWS INDICATE DIRECTION TO WHICH WIND IS BLOWING.)

generated over the lake due to the loss of heat and water vapor during autumnal mixing of the lake waters. (Recall that during October the lake served as a source area for several cyclonic storms (Figure 12).) Secondly, the Uranium City weather station located near Lake Athabasca experienced a persistent easterly wind throughout the 1972 freeze season. This direction was contrary to the prevailing flow at all other stations in the general vicinity. The Uranium City station must have been under the influence of some local factor, such as location relative to nearby terrain features, that masked the true direction of flow. These examples demonstrate that care must be taken in deriving generally valid regional conclusions based upon local meteorological observations.

3.2 THAW SEASON - SPRING 1973

The break-up portion of the 1972 ice year lasted approximately 120 days (i.e., mid-March to early July). During that time the ERTS-1 covered the test site in seven 18-day cycles. The geographical and temporal extent of the coverage greatly exceeded that for the previous freeze season (Appendix C), and the record is surely the most comprehensive of its kind ever obtained for ice surveying purposes.

3.2.1 Transition Zone Migration

The conditions for observing the thaw transition zone are the inverse of those for the freeze transition zone. During the thaw season, the smallest lakes accompanied by the faster flowing sections of most rivers, lose their ice cover early, whereas the largest lakes tend to retain their ice for longer periods of time. This is a consequence of more

rapid solar heating of the water layer below the ice in small, relatively shallow lakes in comparison to heating of a similar layer in large, relatively deep lakes. In effect a greater volume of water must be heated in large lakes before they begin to thaw.

The northern transition zone boundary (NTZ) is marked by the trace of an irregular line of open or partially open lakes. Under thaw conditions these lakes are typically the smallest ones in the region. Progressing southward, the percentage of open lakes increases until a point is reached where all lakes are completely ice free. The line marking the last lakes possessing a discernable fraction of ice cover represents the southern transition zone boundary (STZ). In every case the STZ includes the largest and presumably deepest lakes in the area.

Many early thaw features not readily apparent from the visible bands of the ERTS multispectral scanner could easily be detected with band 7. Such early thaw features included: loss of snow cover, open fractures, fracture swarms, shoreline open water, open water at inlets and outlets, and mottled ice surfaces. Varying gray levels of reflectance from the ice surface, in contrast to a fairly uniform surface brightness, were interpreted as indicative of variable ice thickness, a presumed accompaniment to thawing.

Taken collectively, these features enabled lakes that were solidly frozen to be discriminated from those that had begun to show signs of thawing. Unexpectedly, a well-defined boundary could be drawn separating the two lake ice conditions; this line of separation was called the ice decay boundary (IDB). In every case in which both were visible the IDB lay well to the north of the transition zone. Obviously, the IDB has no counterpart during the freeze season, since at that time lakes are either frozen over or they are not.

The thaw season transition zone was taken as the smoothed average of previously reported base observations [14,15]. That is, an average trend of the daily variations in the positions of the NTZ and STZ was assumed to represent the trend of the zone over a period of time. In such manner, consecutive day inconsistencies were largely eliminated. An identical technique was applied to the ice decay boundary (IDB).

Averaged transition zone boundaries and ice decay boundaries for the 1973 thaw season are displayed in Figures 23 through 29. Interpolated boundaries are marked by dashes, and dates mark the approximate time and location of a given boundary observation. Typically, the outlined transition zone and IDB increase in age from east to west, but this is not always the case (e.g., Figure 26). By quickly scanning the figures from page to page, a sense of the motion of the zone can be obtained.

Two or more observations on the same day, separated by about 1500 miles give an instantaneous view of the transition zone on a continental scale. This view is readily apparent in Figures 26-27. These figures confirm a pronounced northwest-southeast trend of the transition zone independent of any temporal variations. Thus the thaw transition zone displays a remarkable similarity in orientation to the freeze transition zone. Apparently, solar radiation plays less of a role in melting ice than this investigator had thought, and sensible and latent heat transfer are the controlling factors.

The transition zone observations from the 1973 thaw season aptly demonstrate the capability of ERTS to cover wide-ranging, transient phenomena in both space and time.

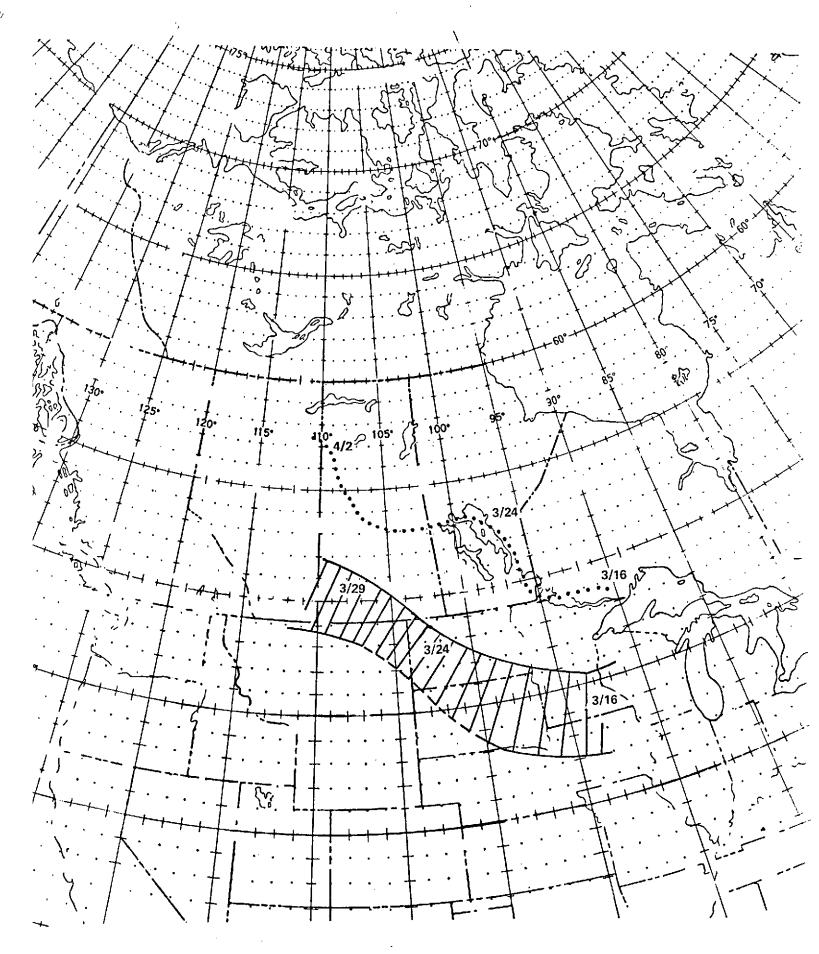


FIGURE 23. LAKE THAW TRANSITION ZONE AND ICE DECAY BOUNDARY (DOTTED) FOR THE PERIOD MARCH 16 THROUGH APRIL 2, 1973. DATES ON MAP INDICATE APPROXIMATE POSITIONS OF BOUNDARIES AT THOSE TIMES. ORIGINAL PAGE IS OF POOR QUALITY

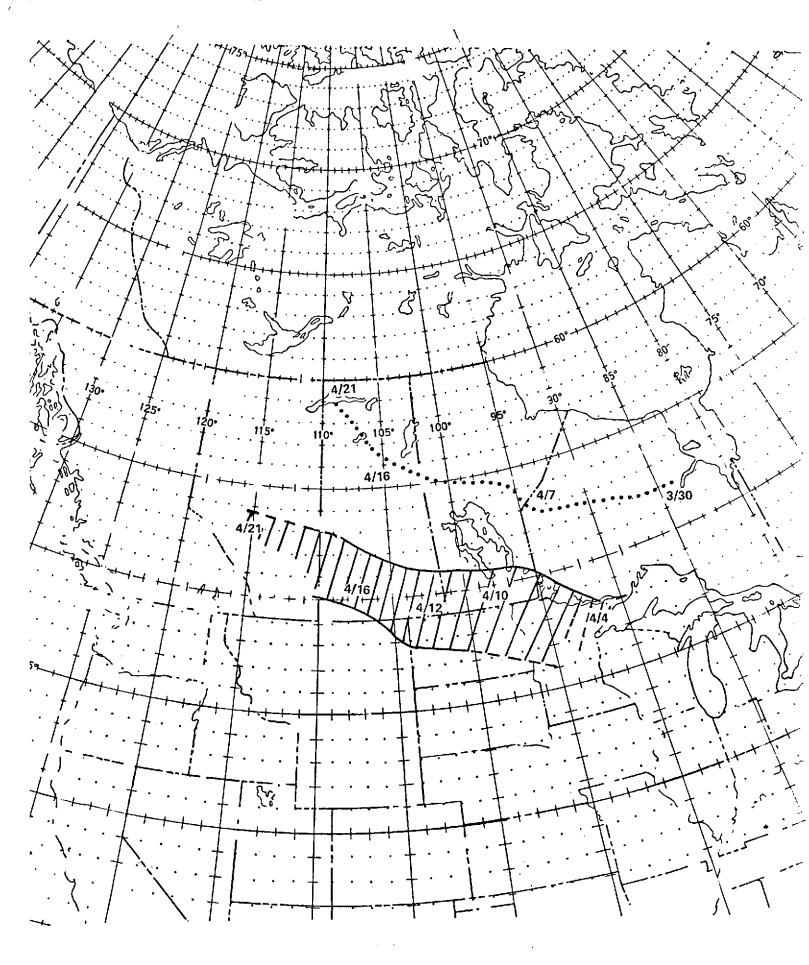


FIGURE 24. LAKE THAW TRANSITION ZONE AND ICE DECAY BOUNDARY (DOTTED) FOR THE PERIOD APRIL 4 THROUGH APRIL 21, 1973. DATES ON MAP INDICATE APPROXIMATE POSITION OF BOUNDARIES AT THOSE TIMES.

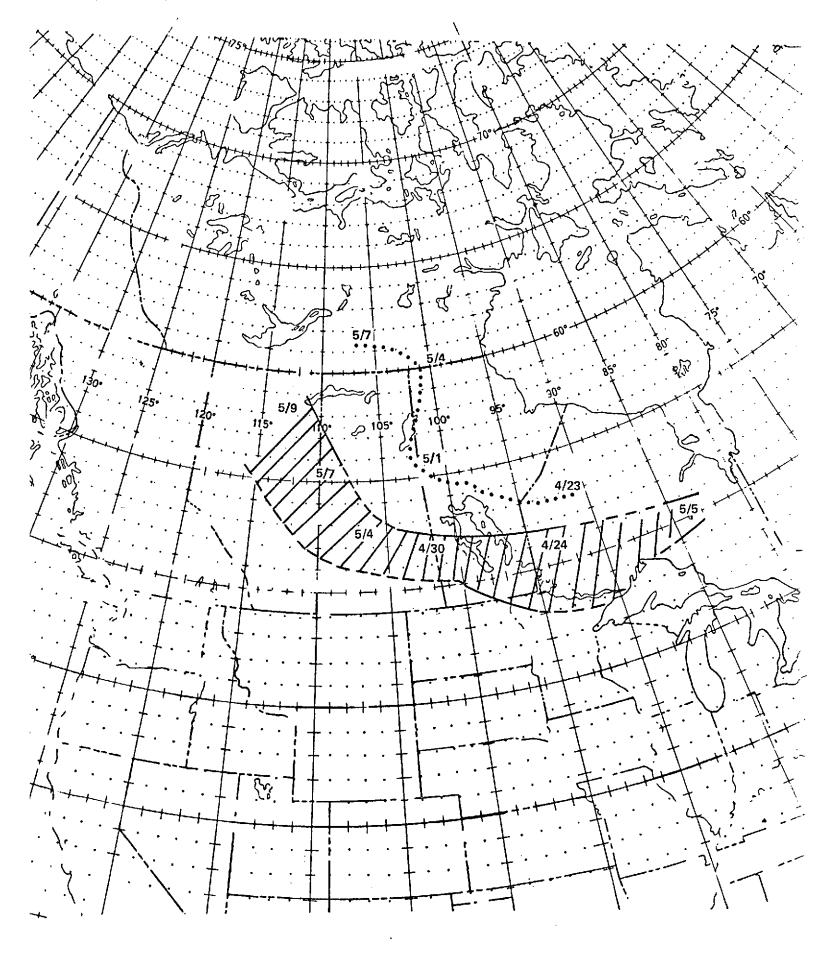


FIGURE 25. LAKE THAW TRANSITION ZONE AND ICE DECAY BOUNDARY (DOTTED) FOR THE PERIOD APRIL 23 THROUGH MAY 9, 1973. DATES ON MAPS INDICATE APPROXIMATE POSITION OF BOUNDARIES AT THOSE TIMES.

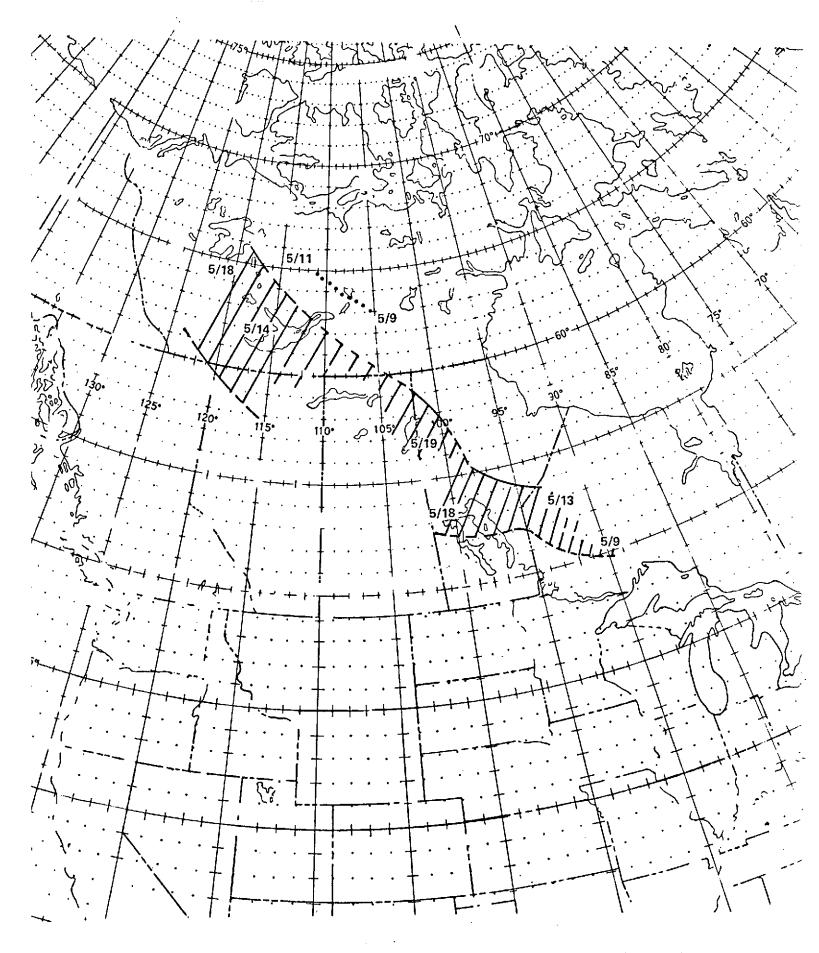


FIGURE 26. LAKE THAW TRANSITION ZONE AND ICE DECAY BOUNDARY (DOTTED) FOR THE PERIOD MAY 9 THROUGH MAY 18, 1973. DATES ON MAP INDICATE APPROXIMATE POSITION OF BOUNDARIES AT THOSE TIMES.

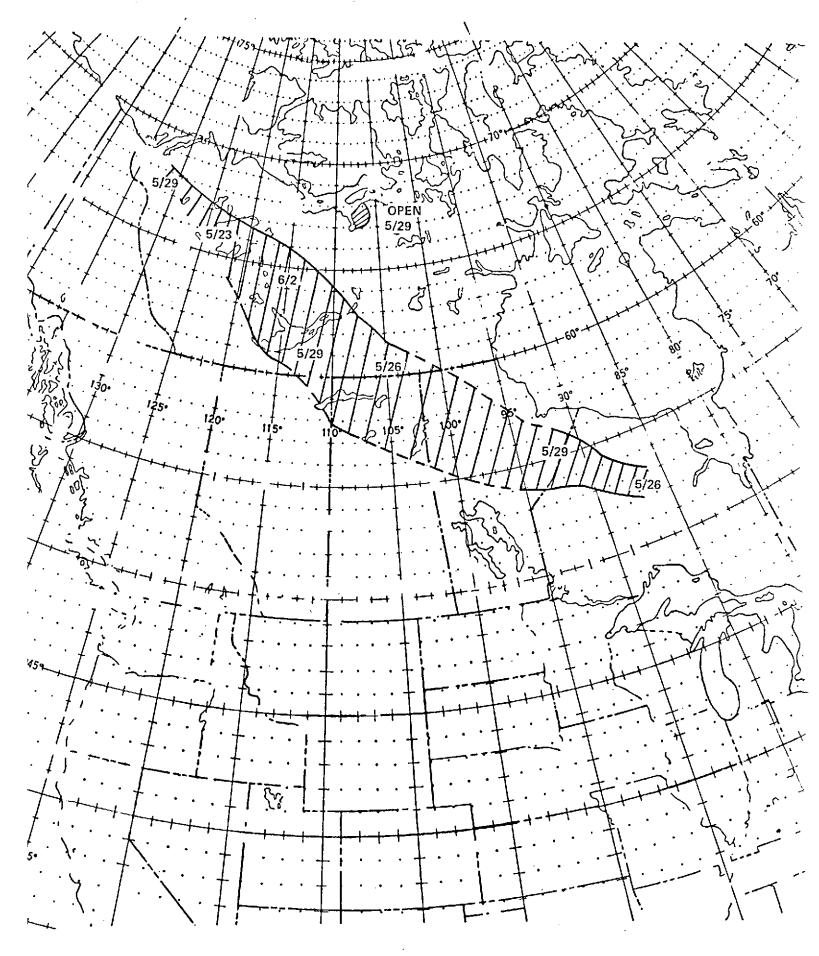


FIGURE 27. LAKE THAW TRANSITION ZONE FOR THE PERIOD MAY 26 THROUGH JUNE 2, 1973. DATES ON MAP INDICATE APPROXIMATE POSITIONS OF BOUNDARIES AT THOSE TIMES.

ORIGINAL PAGE IS OF POOR QUALITY

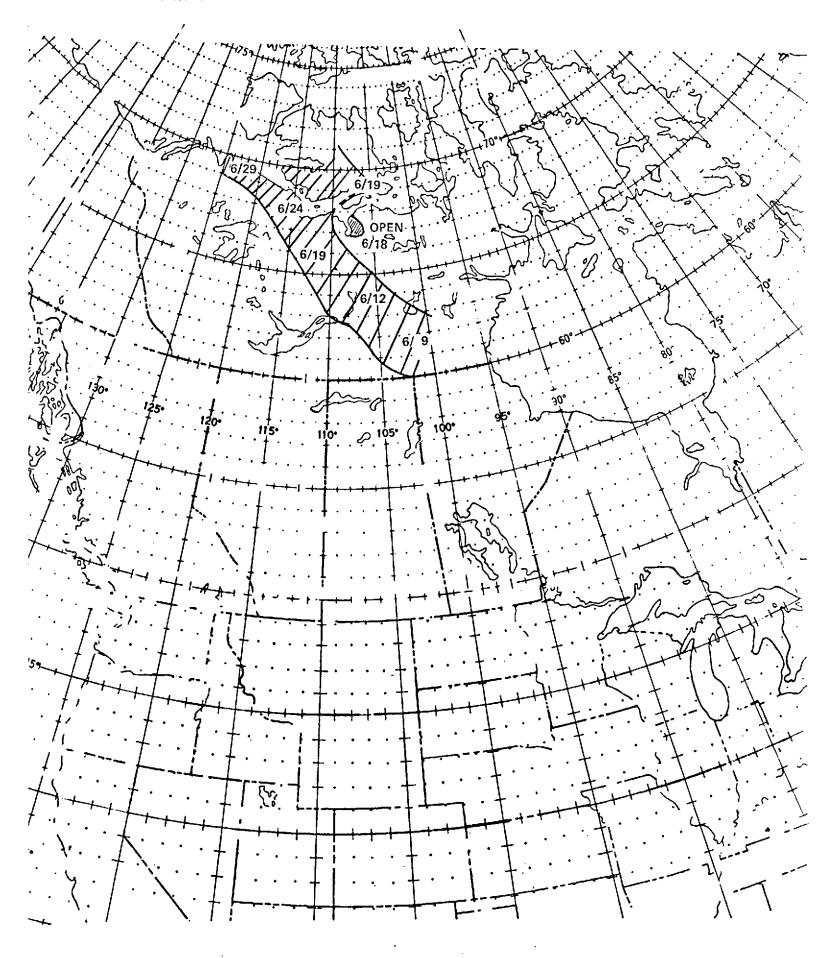


FIGURE 28. LAKE THAW TRANSITION ZONE FOR THE PERIOD JUNE 9 THROUGH JUNE 29, 1973. DATES ON MAP INDICATE APPROXIMATE POSITIONS OF BOUNDARIES AT THOSE TIMES.

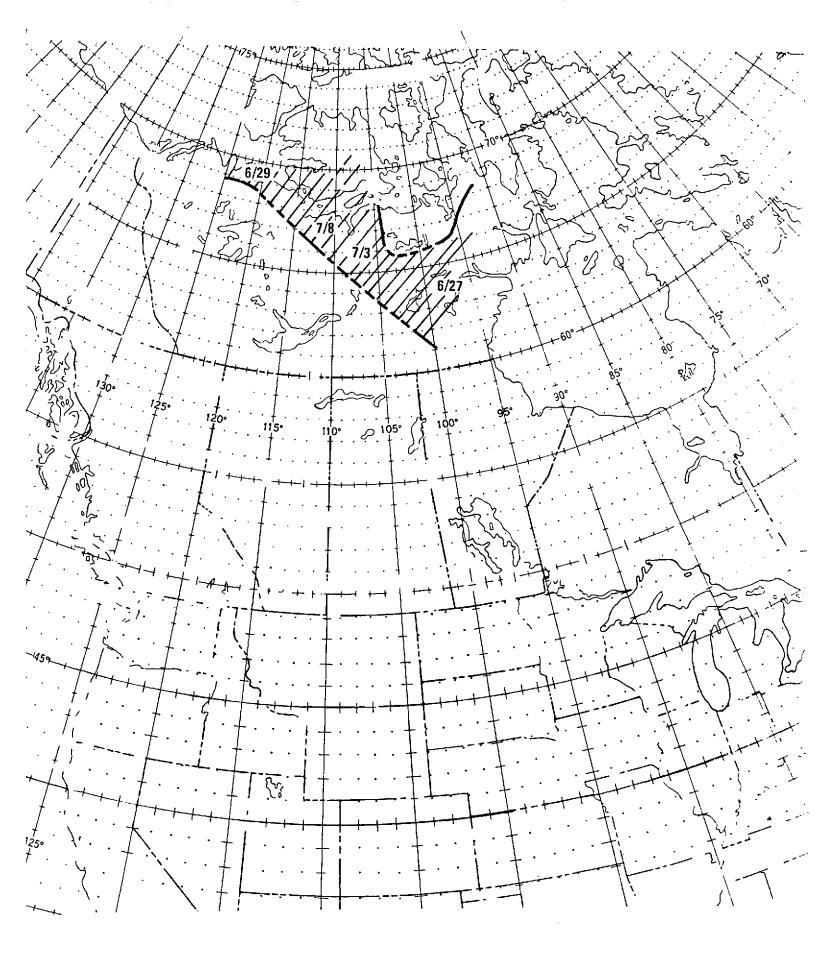


FIGURE 29. LAKE THAW TRANSITION ZONE FOR THE PERIOD JUNE 27 THROUGH JULY 8, 1973. DATES ON MAP INDICATE APPROXIMATE POSITIONS OF BOUNDARIES AT THOSE TIMES.

3.2.2 Comparison With Ground Truth

The observed transition zones were compared with the exact breakup dates of a number of Canadian lakes in the same manner as was done for the freeze season. The thaw (breakup) dates of the ground truth lakes are superposed on the TZ locations in Figures 30-33. If the transition zones are located properly, thaw dates north of the zone should postdate the period of observation, whereas thaw dates south of the zone should precede the observation period. An examination of Figures 30-33 reveals that the above criteria are satisfied in every case but two.

In the first exception Wascana Lake, Saskatchewan (030464) (Figure 30) has an ice clearing date of March 15, approximately one month earlier than its historical mean date. The question of the ice breakup date for Wascana Lake was taken up with the Field Meteorological Systems Branch of the Canadian Atmospheric Environment Service, the group responsible for maintaining the ice record. The early thaw date was confirmed and was attributed to exceptionally mild late winter weather in 1973 [16]. Meteorological records show that temperatures averaged 6-12°F above normal in southern Saskatchewan for both January and February.

All in all the error in locating the TZ relative to Wascana Lake is negligible. The important point to note is that the unusually early thawing of the lakes of southern Saskatchewan was correctly interpreted from the ERTS imagery; the result was a transition zone that swung well to the north in that part of the test site (Figures 23, 24 and 30).

The other exception, Lake Minnewanka, Alberta (020084) (Figure 32) is an artificial waterbody created by the damming of a narrow canyon at the base of the Rocky Mountains. Given its high altitude and the protection of the surrounding

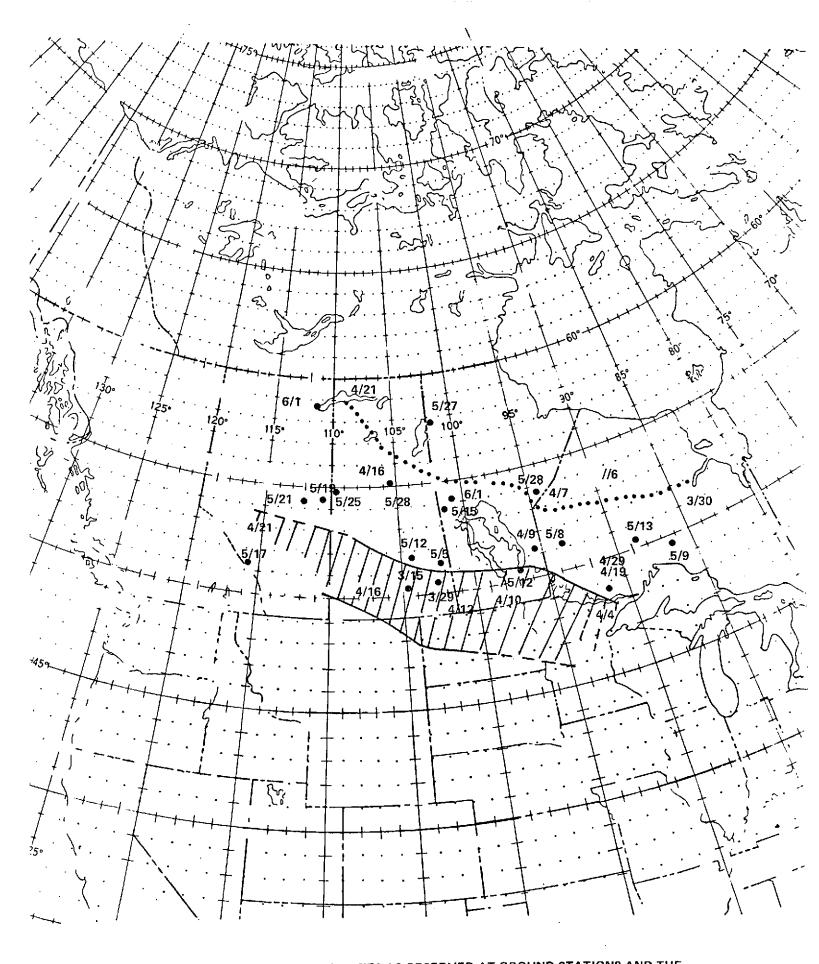


FIGURE 30. LAKE ICE BREAKUP DATES AS OBSERVED AT GROUND STATIONS AND THE POSITION OF THE TRANSITION ZONE FOR THE PERIOD APRIL 4 THROUGH APRIL 21, 1973.

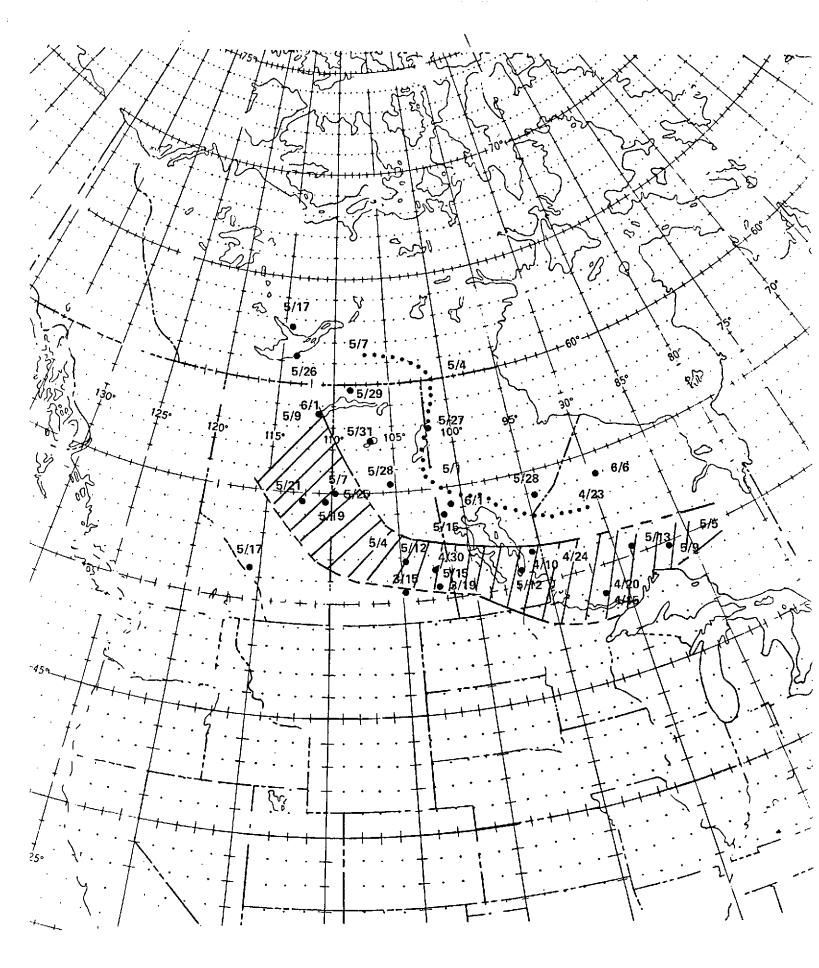


FIGURE 31. LAKE ICE BREAKUP DATES AS OBSERVED AT GROUND STATIONS AND THE POSITION OF THE TRANSITION ZONE FOR THE PERIOD APRIL 23 THROUGH MAY 9, 1973.

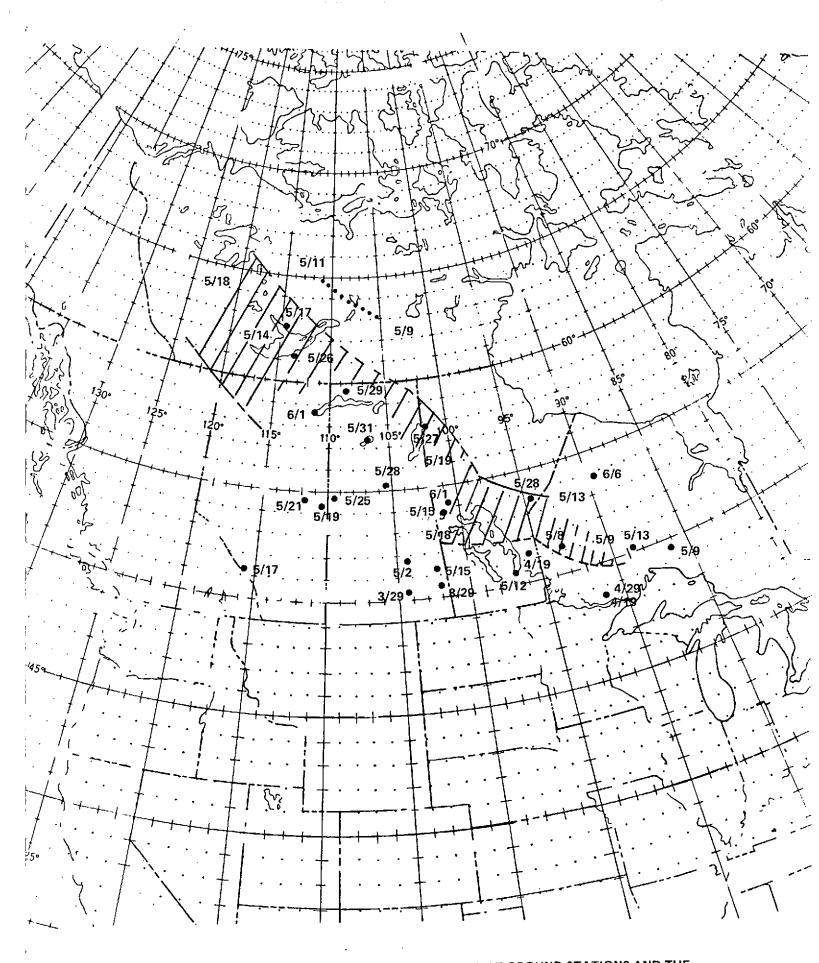


FIGURE 32. LAKE ICE BREAKUP DATES AS OBSERVED AT GROUND STATIONS AND THE POSITION OF THE TRANSITION ZONE FOR THE PERIOD MAY 9 THROUGH MAY 18, 1973.

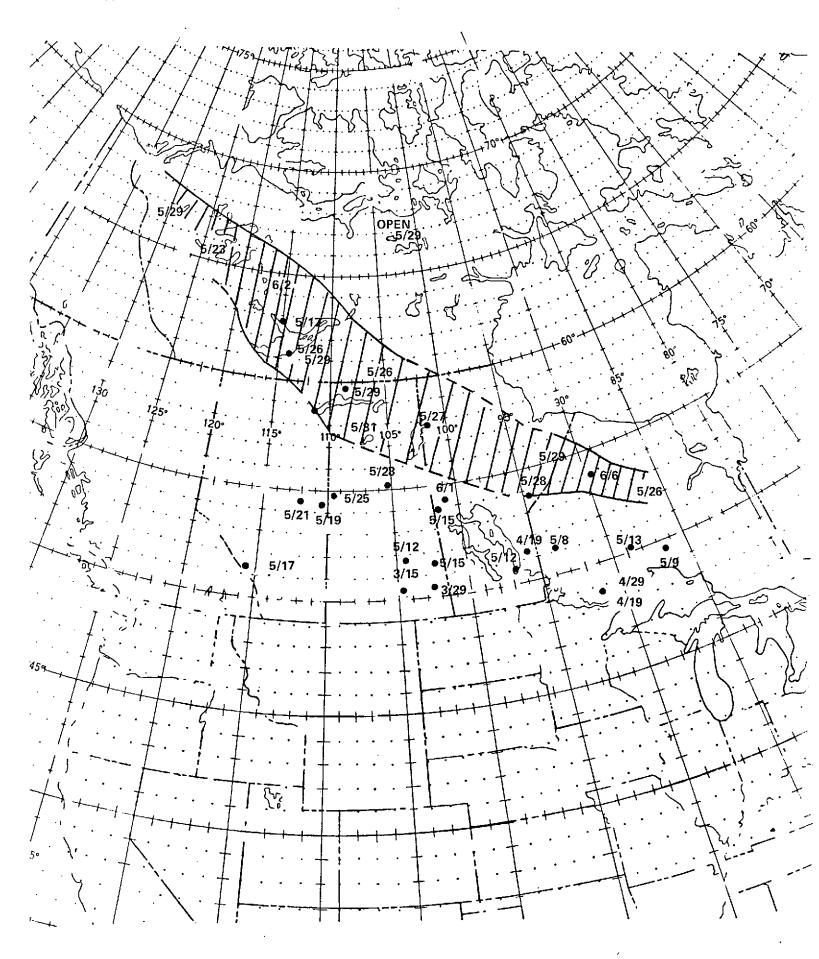


FIGURE 33. LAKE ICE BREAKUP DATES AS OBSERVED AT GROUND STATIONS AND THE POSITION OF THE TRANSITION ZONE FOR THE PERIOD MAY 26 THROUGH JUNE 2, 1973.

mountains, it is not surprising that Lake Minnewanka should thaw later than nearby lakes in the low flatlands to the east. In this case the lake is anomalous.

3.2.3 Comparison With Earlier Studies

Comparisons of the location and orientation of transition zones observed by McFadden [12] in 1963 and 1964 agree quite well with the 1973 transition zone at similar points in time. In addition, lake "break-up lines," reported by Ferguson and Cork [17] from an analysis of weather satellite imagery taken over the period 1967 through 1970, closely resemble the STZ ("deep lake thaw line") in general trend and direction of migration. Both earlier studies confirm the consistent northwest-southeast orientation of the transition zone throughout the thaw season.

3.2.4 Comparison With Weather Systems

An attempt to correlate the thaw transition zone with the movement of dominant air masses proved to be largely unsuccessful, and a detailed analysis of vernal weather patterns was not justified. However, a few generalities are instructive.

During March of 1973 the predominant flow of both cyclones and anticyclones was west to east. In April this flow was largely diverted to a north to south direction over the mid-continent, and by May the principal flow direction had shifted northwest to southwest. Finally, the June trend became once again west to east. To a first approximation these directional trends in the flow of upper latitude air masses are reflected in TZ orientations, allowing for a lag period of several weeks (see Figures 23-29). Apparently the 1973 thaw transition zone acted as a passive agent relative to the flow of air masses, however, its own orientation shifted in response to that flow.

These findings are consistent with the supposition that unlike lake freezing, which can influence weather patterns through the release of large amounts of heat and water vapor to the atmosphere, the thawing of lakes should not be an important factor in regulating weather, as only the absorption of a fairly small amount of atmospheric heat is involved.

3.2.5 <u>Comparison With Meteorological Data</u>

Due to a one year delay period in the receipt of Canadian weather data, a detailed analysis of meteorological parameters was not attempted. However, air temperature data from selected weather stations was used in an investigation of running mean temperature, the subject of the following section.

3.3 RUNNING MEAN TEMPERATURE STUDY

As one means of examining the interrelationship of the lake transition zone and regional climate, a task was begun to determine running mean temperatures for selected Canadian weather stations. The running mean temperature (RMT) is simply the mean daily air temperature averaged over a span of time, usually measured in days. Expressed mathematically the RMT for a number of days, n, is:

$$RMT_n = \frac{1}{n} \sum_{i=1}^{n} \overline{T}_i$$
,

where \overline{T} is the mean daily air temperature. In effect the RMT $_n$ is an integrator of mean air temperature for the previous n days. Thus, RMT $_{30}$ can be regarded as the mean monthly temperature, and RMT $_1$ is just another expression for the daily mean temperature.

By advancing the RMT calculation in successive days, the variation of integrated mean temperature over a period of time, such as a season, can be studied. This was the approach adopted for this investigation.

Of the 18 weather stations whose meteorological records were used, 11 were located in Manitoba and 7 in western Ontario (Figure 2). These stations provided reasonably adequate geographical coverage of the east-central portion of the test site. The coverage periods were restricted to those ice years-during which the transition zone was observed (i.e., 1961, 1963, 1972).

3.3.1 Running Mean Temperature - Freeze Season

McFadden [12] was able to show that lakes whose mean depths exceed 6 meters freeze over very close to the intersection date of the 40-day running mean air temperature (RMT₄₀) and the freezing temperature of water (32°F). He further suggested that lakes with mean depths less than 6 meters freeze over at about the time the 3-day running mean temperature (RMT₃) reaches the freezing temperature. A sample of his results for The Pas weather station during the 1961 freeze season is shown in Figure 34. The agreement between the observed freeze dates for both shallow and deep lakes and the intersection dates of the RMT curves with the freezing temperature is quite good. On the whole, the sample is typical of the results obtained for all weather stations used in McFadden's study.

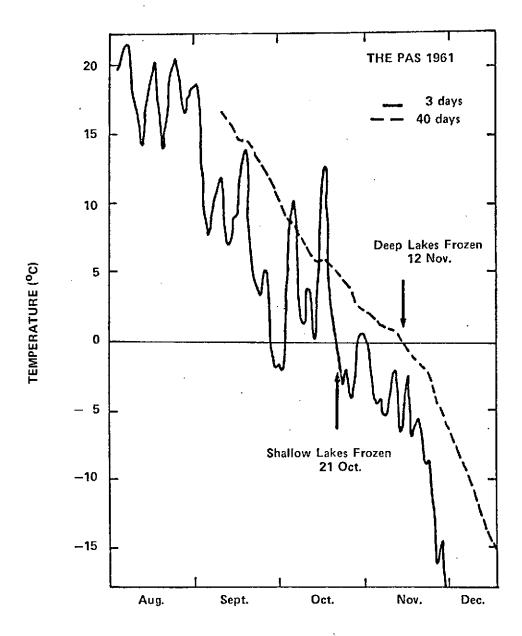


FIGURE 34. COMPARISON OF FREEZE DATES AND THE 3-DAY AND 40-DAY RUNNING MEAN AIR TEMPERATURES AT THE PAS, MANITOBA FOR 1961.

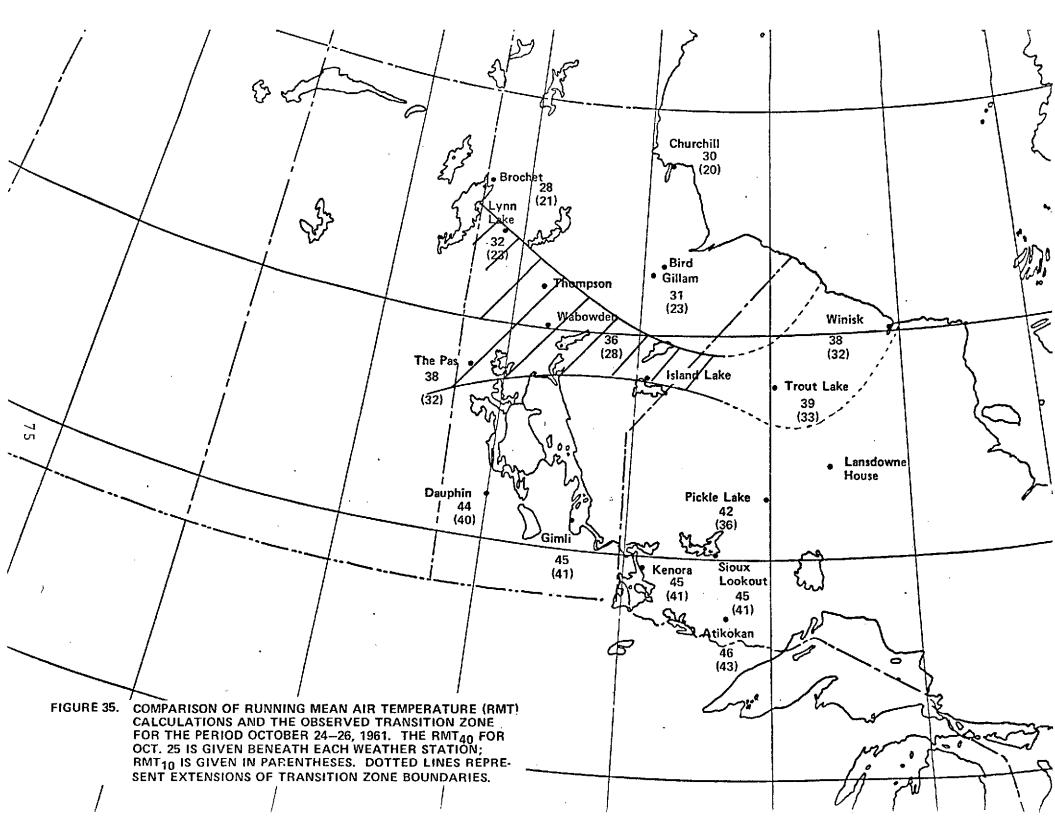
(FROM McFADDEN [12])

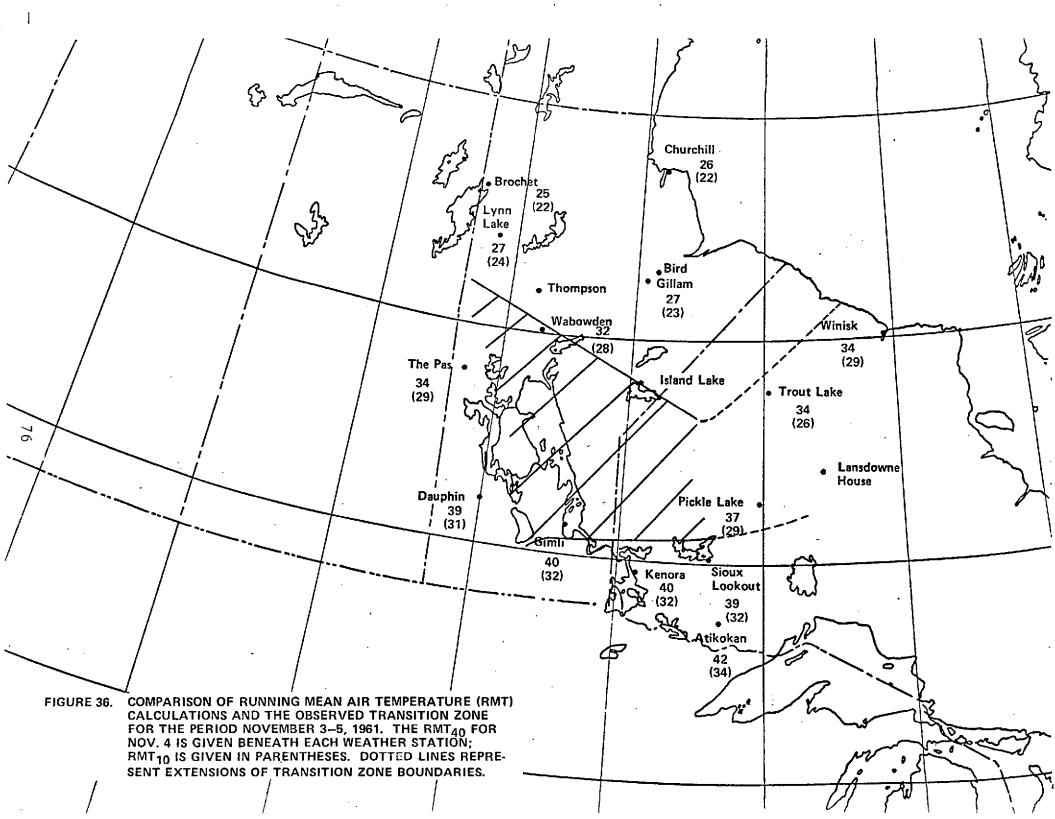
The possibility of rendering McFadden's findings in map form rather than in graphical representation, was considered as a supplemental effort to this investigation. A map has the inherent quality of adding a 2-dimensional perspective to any observation which, in turn, can serve to enhance spatial features of the observation that otherwise would remain obscure. The approach adopted here was to plot the observed location of the transition zone on a map and compare that with computed RMT for weather stations in the vicinity.

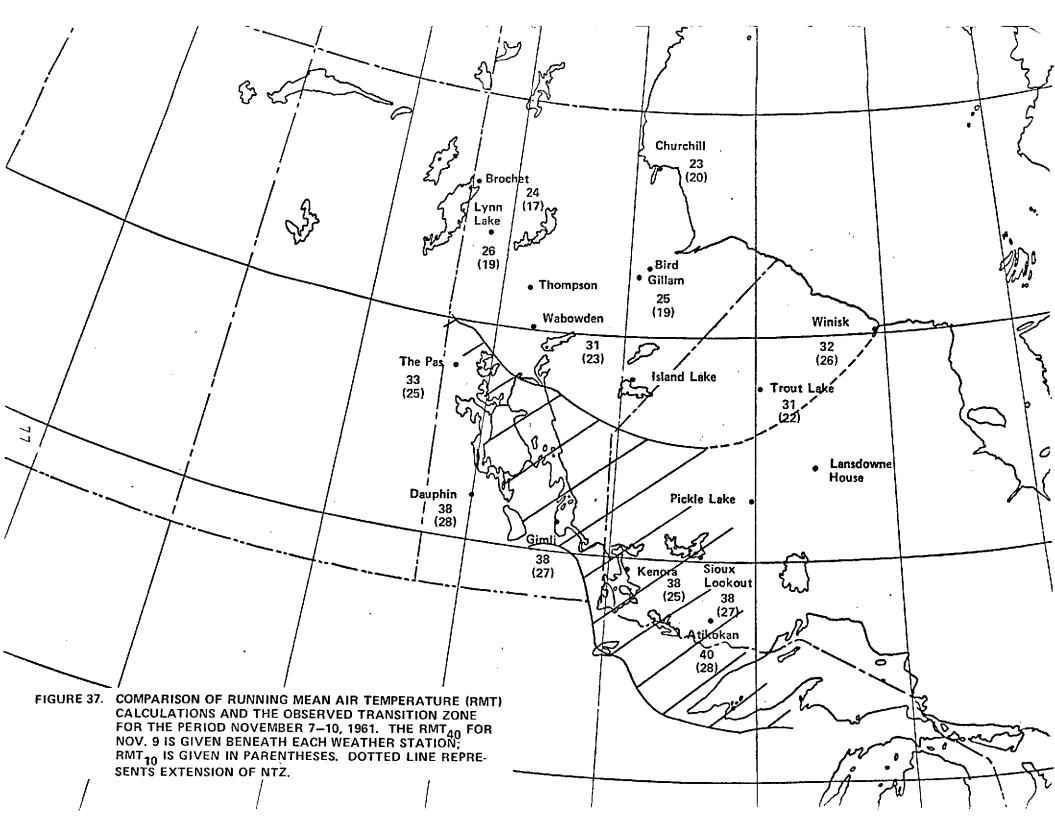
By definition, the "deep-lake freeze line" and the northern transition zone boundary (NTZ) are identical, as are the "shallow-lake freeze line" and the southern transition zone boundary (STZ). Therefore, the deep-lake and shallow-lake freeze dates observed by McFadden are equivalent to the passage of the transition zone. This fact justifies a comparison of the transition zone and running mean temperature.

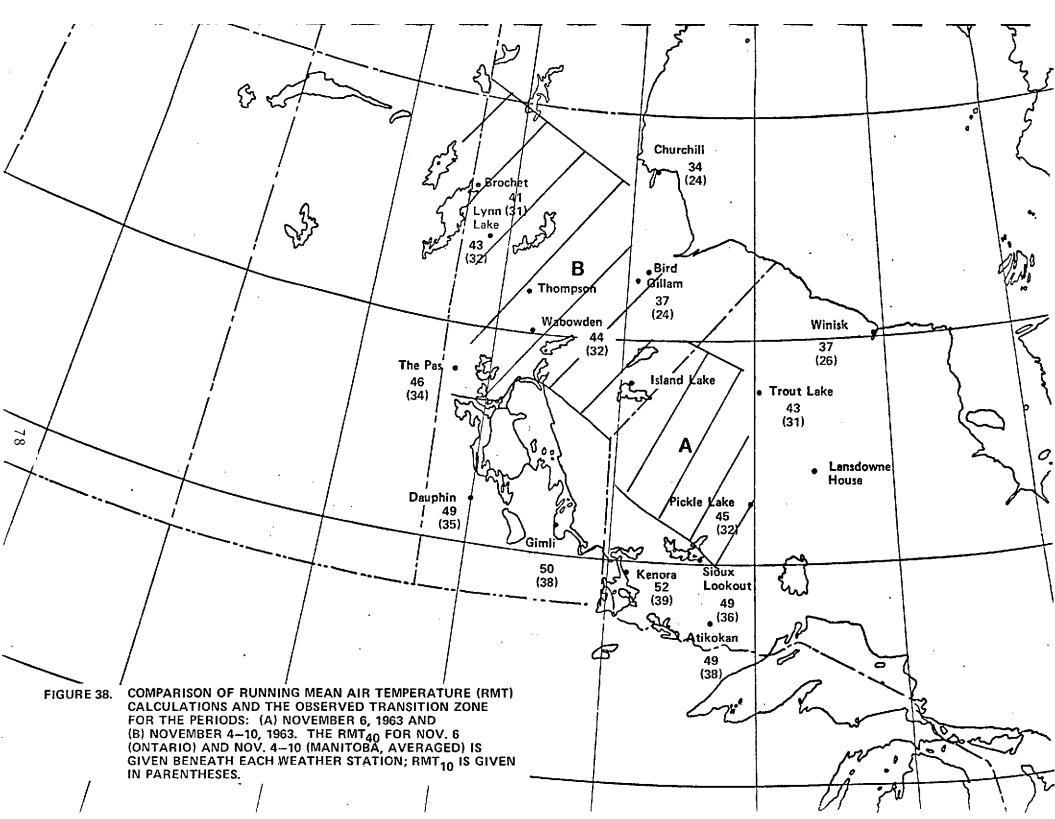
A comparison of McFadden's observed transition zone for the 1961 and 1963 freeze seasons with the calculated ${\rm RMT}_{40}$ and ${\rm RMT}_{10}$ is presented in Figures 35-38. The 10-day running mean temperature was chosen because this base period produced fewer high frequency oscillations than the 3-day period used by McFadden (Figure 34).

If McFadden's criterion is correct, the NTZ and the RMT $_{40}$ freezing temperature isotherm (32°F) should coincide, as should the STZ and the RMT $_{10}$ freezing temperature isotherm. A close examination of the 1961 freeze season (Figures 35-37) reveals that the criterion is indeed met, at least at the scale of the weather station spacing. In every instance, all stations to the north of the NTZ have a RMT $_{40}$ less than 32°F, whereas all stations south of the NTZ exceed 32°F. Similarly, all stations north of the STZ have a RMT $_{10}$ less than 32°F, and all stations south of the STZ exceed 32°F. Those stations







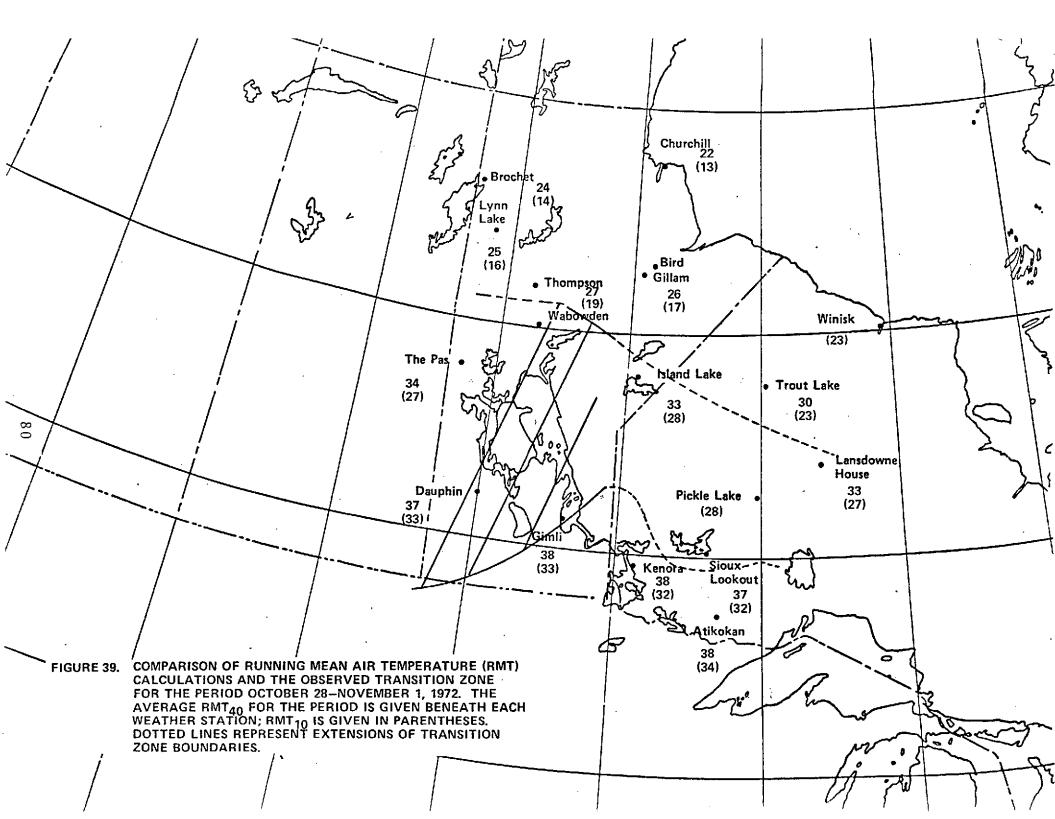


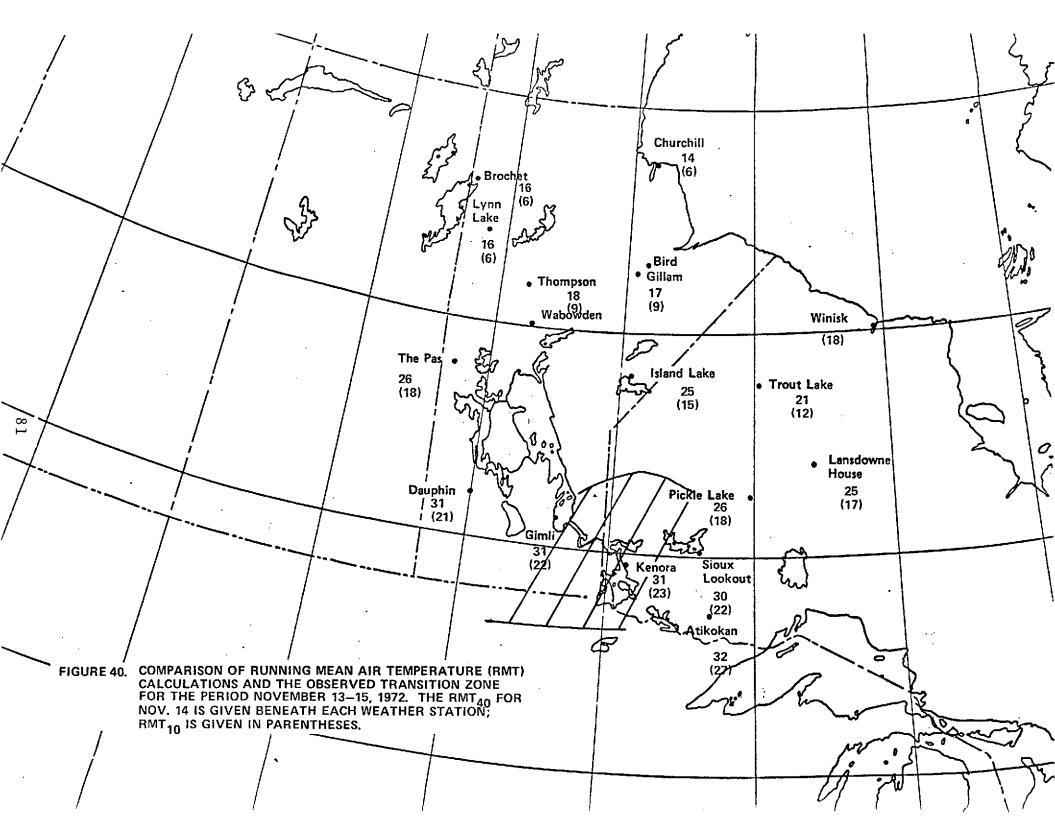
close to either transition zone boundary (e.g., Lynn Lake and The Pas in Figure 35) have running mean temperatures at exactly the freezing temperature. The fit is so good, that one is tempted to extend the transition zone solely on the basis of RMT calculations. It should be noted, however, that McFadden's criterion resulted from his observations of the transition zone; in large part this accounts for the goodness of fit.

Despite the simplicity and accuracy of the RMT method for locating the transition zone in space and time, the computational base period may vary from year to year. For example, in 1963 (Figure 38) the RMT $_{40}$ and RMT $_{10}$ defined the NTZ and STZ much less well than they did in 1961; a transition zone drawn solely on the basis of RMT $_{40}$ and RMT $_{10}$ would differ considerably from the observed transition zone for the same period. As has been noted previously, the 1961 and 1963 freeze seasons differed appreciably in temperature.

The annual variation in the RMT base period is again obvious for the results from 1972 (Figures 39-40). As in the case of 1963, these latest results provide a less than optimum fit to McFadden's criterion; the transition zone for mid-November 1972 (Figure 40) is most incongruous of all.

Only a moderate effort is required to adjust the RMT base period (n) and produce results that better fit each observed transition zone. Such "tuning" of McFadden's criterion would only have value if (1) the adjusted RMT base period was applicable over the entire freeze season and/or (2) a relationship was discovered between the base period and the general climatology of each freeze season. That is, the transition zone could be accurately predicted in space and time, if the appropriate RMT base period was known a priori.



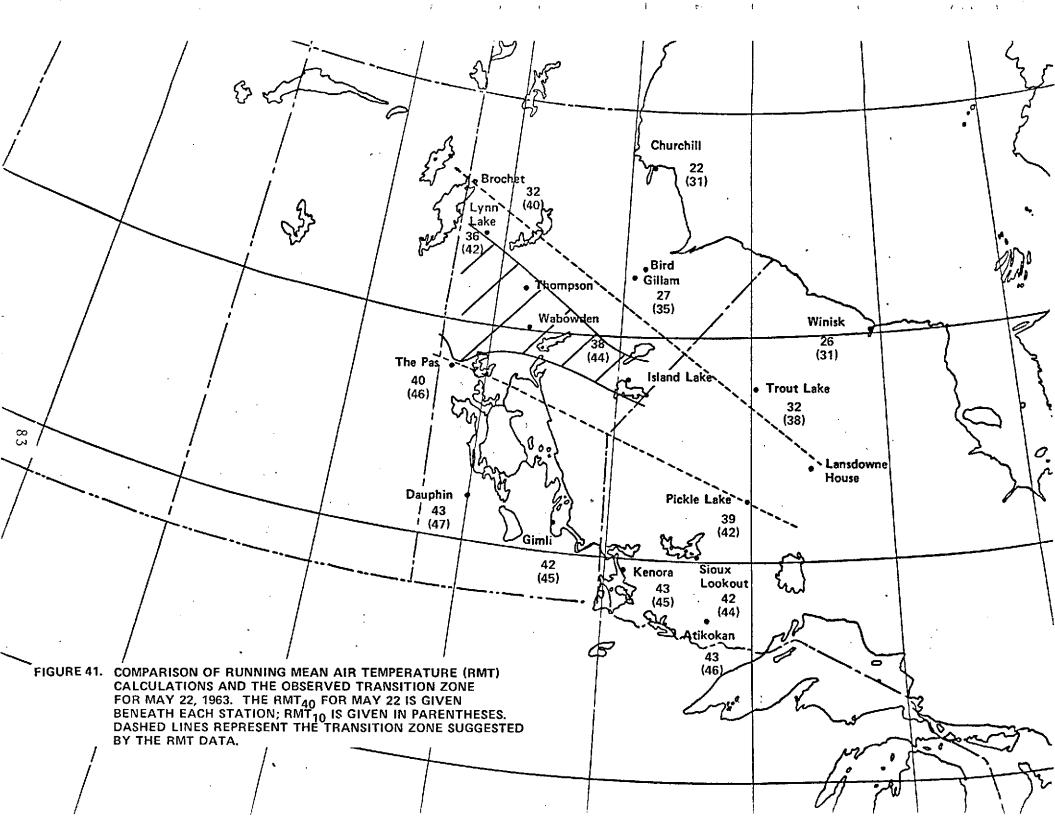


An extensive analysis of "tuned" base periods as seasonally or annually varying functions of regional climatology was not attempted in this investigation. Future efforts along this line of research are recommended. In the meantime, McFadden's criterion is an acceptable means of placing the freeze transition zone.

3.3.2 Running Mean Temperature - Thaw Season

The corollary of McFadden's criterion for the thaw season states that deep lakes lose their ice cover very close to the intersection date of the 40-day RMT and the temperature of maximum water density (4°C/39°F), whereas shallow lakes thaw out at about the time the 3-day running mean temperature reaches the temperature of maximum water density. In actuality, McFadden uses 5°C as the deicing temperature, but gives no justification for this selection. The reason the freezing temperature (0°C/32°F) is not used has to do with the physics of lake ice melting which largely occurs at the ice-water interface. Since the process is well understood, it is not discussed here.

A comparison of a thaw transition zone observation for 1963 [12], and calculated running mean temperatures is shown in Figure 41. In addition to the observed TZ, dashed lines have been added to indicate TZ boundaries based solely on RMT data. Note that if McFadden's thaw criterion holds, the NTZ should coincide with the RMT $_{10}$ 39°F isotherm, while the STZ should coincide with the RMT $_{40}$ 39°F isotherm. The agreement is excellent, within the constraints of available information.



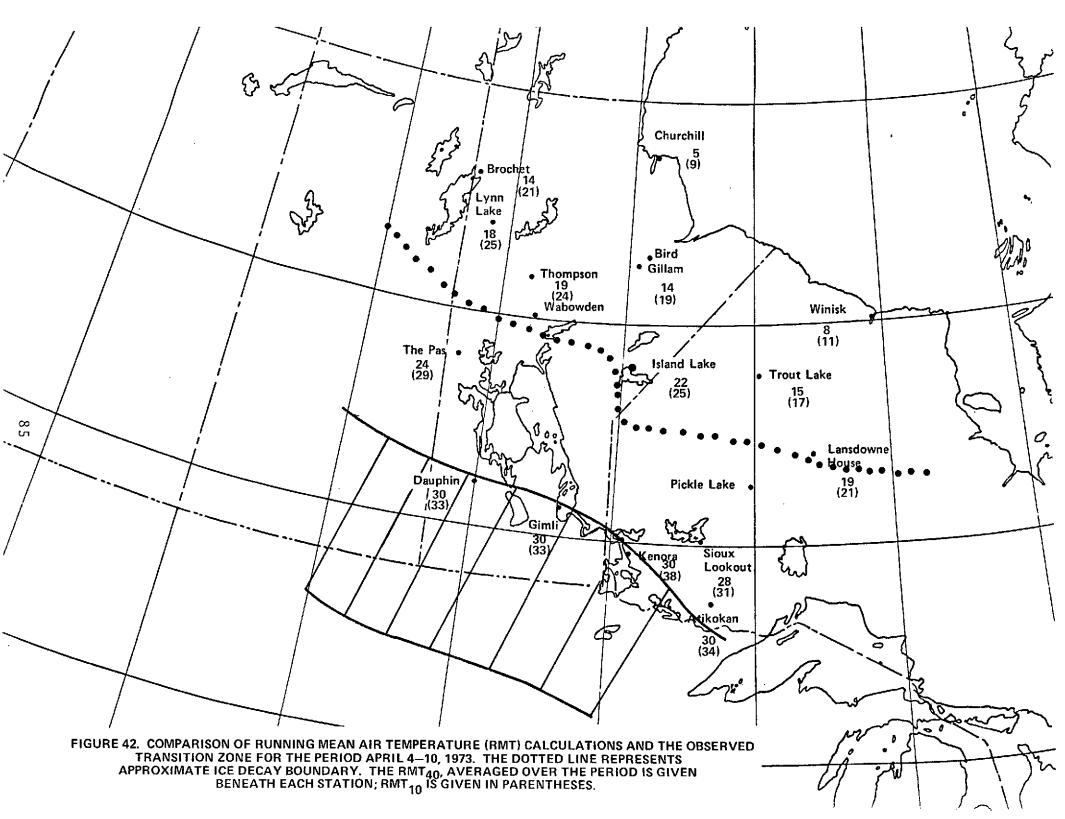
The real test of McFadden's thaw criterion is the 1973 thaw season, the results for which are shown in Figures 42-45. The break-up dates for lakes located within the TZ have also been included for comparative purposes. Within the uncertainty inherent in positioning the transition zone, the agreement is good. Two obvious exceptions are the stations Dauphin and Gimli in Figures 42-44. In both these cases the RMT values were consistently below what they should have been relative to the location of the transition zone. To a certain degree this anomaly reflects an unusually cold mid-April in southern Manitoba (Figure 43), the duration of which was too brief to radically affect the transition zone. Be that as it may, the results suggest that the thaw criterion should be applied with care.

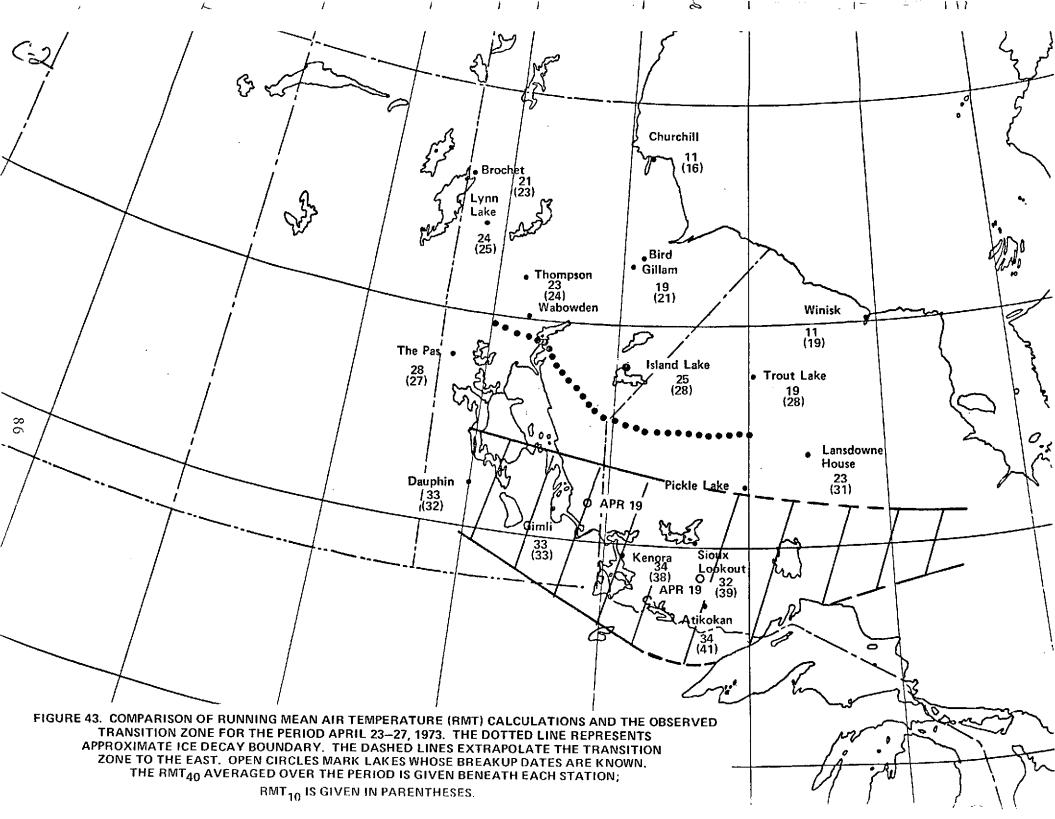
3.3.3 RMT Prediction Method

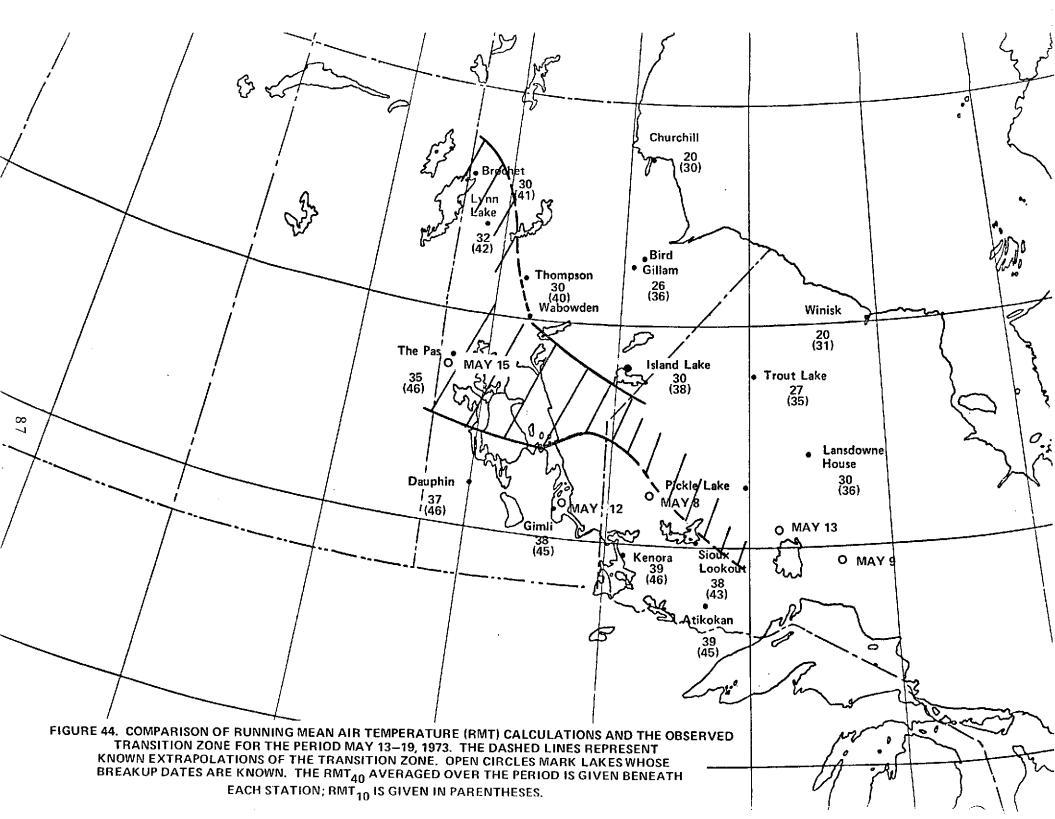
Despite some minor inconsistencies, the great bulk of data indicate that the running mean temperature calculation is a fairly accurate means of predicting the passage of the lake transition zone during both freezing and thawing periods. What's more, if the "deep" lakes of a region are distinguishable from the "shallow" lakes, the freezing and thawing dates of all lakes can be estimated within the accuracy of extended weather forecasts. The RMT prediction method, embodied in McFadden's criteria, is a viable means of locating the transition zone throughout the ice year.

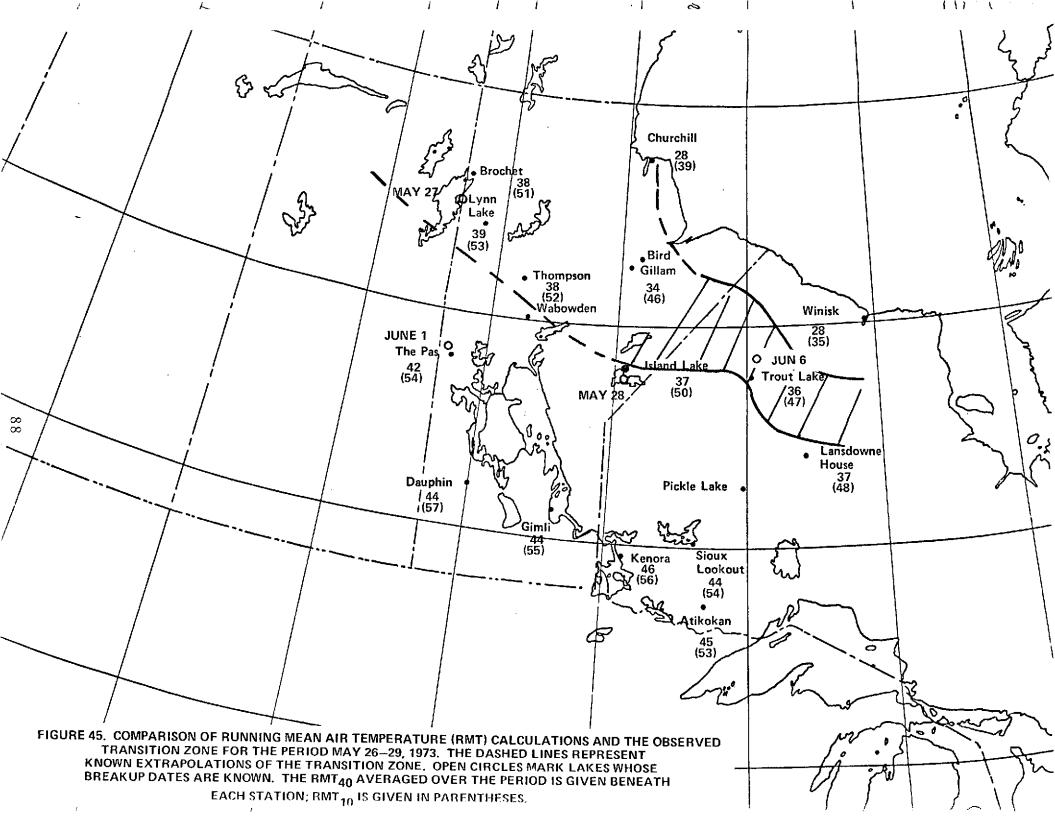
3.4 LAKE MEAN DEPTH EVALUATION

An important limnological objective of this investigation was to estimate the approximate mean depths of lakes on the basis of their relative freeze dates. Since lakes freeze by giving up heat from their water mass to the atmosphere,









lake freeze dates could function as a relative measure of water mass. The mean depth, defined as lake volume divided by surface area, can serve as the unit of water mass.

In order to investigate how freezing and thawing dates vary as a function of mean depth, the historical freezing and thawing data given in Appendix B were collected for lakes of known morphometry. This information was reduced; mean freeze and thaw dates were calculated for each lake with 4 or more observations. Plots of the resultant data as a function of latitude are shown in Figures 46-47; each lake is labeled with its mean depth in meters. As expected, mean freeze dates generally increase as latitude decreases (Figure 46), while mean thaw dates increase as latitude increases (Figure 47).

Morphometric dependencies become somewhat more pronounced after isopleths of constant mean depth are drawn.
These demonstrate that a simple linear relationship between
latitude, mean depth, and mean freeze date does not exist,
at least within the accuracy of the available data. However,
longitudinal effects, which are known to occur, as well as
temporal variations, have been largely neglected in this
simplistic analysis.

The influence of mean depth in regulating the freezing date is nicely demonstrated by a group of Wisconsin lakes clustered about 43°N latitude (Figure 46). The analogous tendency for deeper lakes to react more slowly in thawing than nearby shallow lakes is shown by the same lakes (Figure 47), but the influence is less pronounced. Be that as it may, the consistencies suggest that a generic relationship between lake ice milestones and mean depth can be developed.

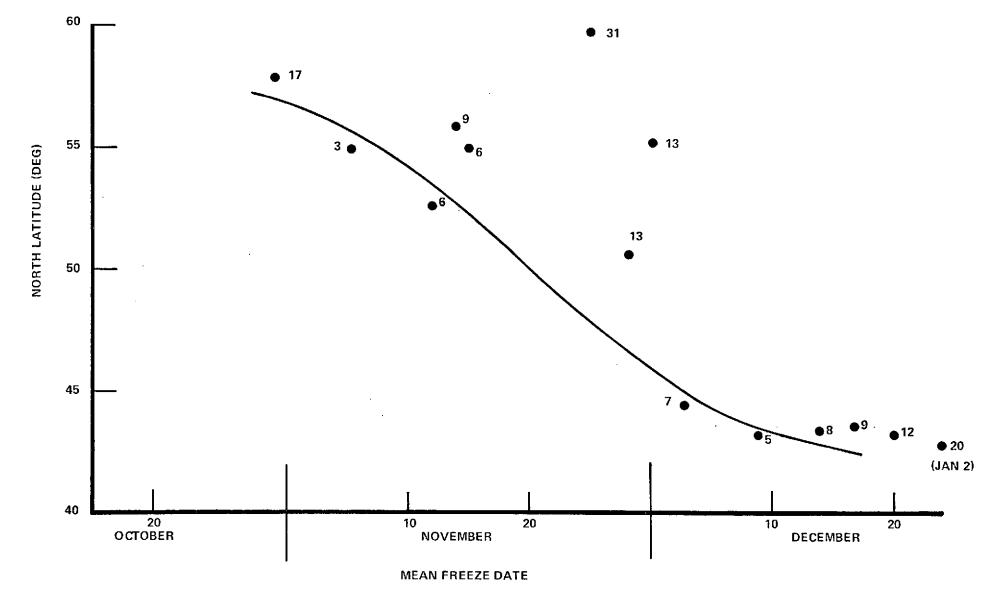


FIGURE 46. LAKE MEAN DEPTH VARIATION AS A FUNCTION OF LATITUDE AND MEAN FREEZE DATE. ONLY LAKES WITH FOUR OR MORE FREEZE OBSERVATIONS USED. NUMBERS ON FIGURE INDI—CATE LAKE MEAN DEPTH; "DEEP" LAKE ISOPLETH DRAWN.

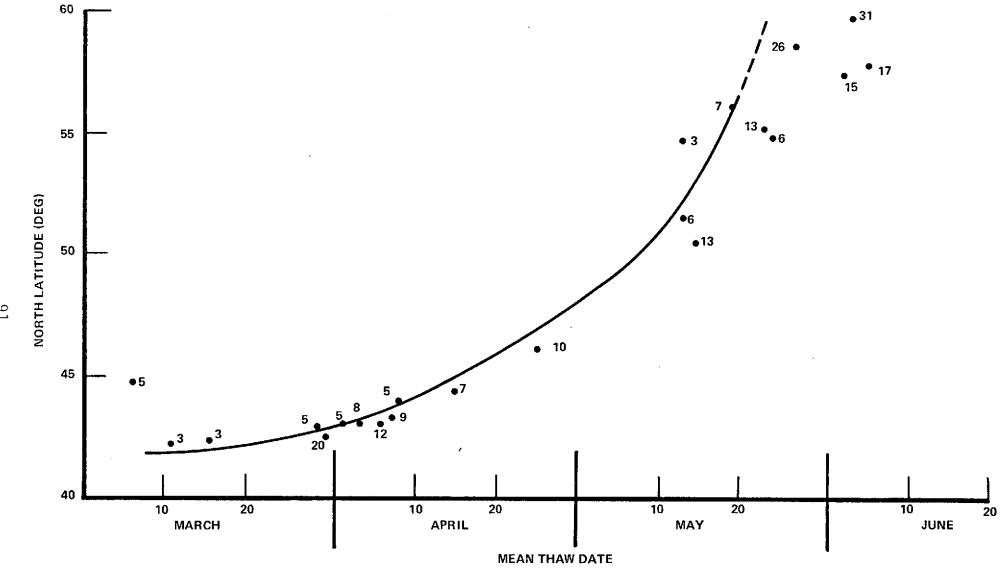


FIGURE 47. LAKE MEAN DEPTH VARIATION AS A FUNCTION LATITUDE AND MEAN THAW DATE. ONLY LAKE WITH FOUR OR MORE BREAKUP OBSERVATIONS USED. NUMBERS ON FIGURE INDICATE LAKE MEAN DEPTH; "DEEP" LAKE ISOPLETH DRAWN.

A first step in estimating lake mean depth according to its freezing and/or thawing date is indicated by the "deep" lake contour in Figures 46 and 47. As an example, any lake at 50°N latitude that became ice covered in early November would be classified as a "shallow" lake. This technique is admittedly crude, however, if a family of curves can be drawn relating freeze date to mean depth, the utility of ERTS as a hydrographic survey tool would be greatly enhanced. Large, uncharted lake groups might be initially surveyed by satellite on the basis of their relative freezing dates.

SECTION 4.0 CONCLUSIONS

The introduction to this report identified five objectives which this investigation sought to accomplish. On the basis of the results reported in the previous section, the extent to which those objectives were fulfilled can now be addressed.

1. Perform a Lake Ice Survey

The conduct of a lake ice survey was shown to be impractical using ERTS. That is, the 18-day repeat cycle of the satellite is too long to permit a meaningful determination of ice state during the critical freezing and thawing periods. The viewing of a given lake on a daily basis is the optimum repeat frequency for performing a lake ice survey.

2. Map the Migration of the Lake Transition Zone

With its large viewing area and synoptic coverage ERTS was ideally suited to observe the lake transition zone on a regular, repetitive basis. To the extent permitted by cloud cover the transition zone was tracked for the entire 1972 ice year. To the author's knowledge this was the first time that the complete evolution of the transition zone had been documented in central North America or anywhere else.

3. Correlate the Transition Zone and its Movements with Regional Climatic Effects

In essence this objective was the heart of the investigation, and a number of noteworthy findings were made. First, the transition zone for the 1972 ice year was consistently oriented in a northwest-southeast direction throughout both

the freeze and thaw seasons regardless of latitude. This orientation was attributed to the dominant atmospheric flow patterns over that part of the continent, and it reflected the influence of regional climate on freezing and thawing trends in lakes. The unidirectional orientation of the transition zone has been corroborated by other investigators, suggesting that it is probably a recurring feature of the zone.

Conversely the transition zone appeared to influence the distribution of regional weather patterns, at least during the freeze season. High pressure centers of polar continental air failed to cross the transition zone. On the other hand, low pressure centers tended to originate in and/or travel along the trend of the transition zone, and the meteorological evidence suggests that the cyclones intensified significantly during their tenure in the zone. Finally, intensely cold anticyclones of arctic origin, polar outbreak highs, appeared to be totally unaffected by the transition zone.

Analogous climatic interactions were not apparent during the thaw season. However, this result is to be expected if heat and water vapor contributed by the lakes were principal factors affecting the atmosphere over the transition zone. Lakes act as heat absorbers after thawing and would have little capacity to interfere with the flow of air in their vicinity. On the other hand, before freezing lakes cool rapidly through the transfer of latent and sensible heat to the atmosphere. The concentrated releases of large amounts of heat and water vapor by the numerous lakes of central Canada were probably responsible for the convective instability over the transition zone observed by Ragotzkie and McFadden [11]. These same heat and mass transfer phenomena may also have been responsible for influencing the flow of air masses relative to the transition zone.

4. Develop a Technique for Predicting the Freezing and Thawing of Lakes

The objective had already been achieved in part by McFadden [12]. This study was able to affirm the applicability of McFadden's relationships and extend them to predicting the location of the transition zone solely on the basis of running mean air temperature (RMT) calculations. A general statement of the predictive model would be:

- Freeze Season "deep" lakes freeze when the 40-day RMT reaches the freezing temperature (0°C), and "shallow" lakes freeze when the 10-day RMT reaches the freezing temperature;
- Thaw Season "deep" lakes thaw (breakup) when the 40-day RMT reaches the temperature of maximum water density (4°C), and "shallow" lakes thaw when the 10-day RMT reaches the temperature of maximum water density.

According to McFadden, lakes whose mean depths exceed 6 meters are "deep", whereas those with mean depths less than 6 meters are "shallow."

The model was successfully tested against transition zone observations for the 1961, 1963, and 1972 ice years. As a result, not only can the freeze and thaw dates of "deep" and "shallow" lakes be predicted on the basis of weather forecasts, but the passage of the transition zone can be estimated as well. These findings do not eliminate ERTS as a tool for making lake ice observations; accurate forecasts of air temperature are not possible beyond more than a few days. The model has greater value as a retrospective means of locating the transition zone for climatic analyses.

5. Estimate the Mean Depths of Lakes on the Basis of their Freezing Sequence

This objective was not achievable because it depended on a successful conclusion to objective one, the lake ice survey. Since the exact freezing dates of individual lakes were indeterminate from the ERTS imagery, correlations with their mean depths were impossible. However, background information on many lakes in the form of freeze/thaw histories and morphometric data was utilized to derive crude relationships between average freeze/thaw date, mean depth, and latitude. The relationships suggest that on the basis of the icing or breakup date of a certain lake, the mean depth can be estimated. This, in effect, fulfills the stated objective.

In summary, the results of this investigation assert the value of ERTS as a data collection platform for making lake ice observations. Granted certain types of observations (e.g., ice surveys) are best handled in conjunction with an active ground truth program, but this is typically the case with most remote sensing applications. The transition zone observations were made totally without benefit of ground truth, and their extensive spatial and temporal coverages are unique to ERTS. The ERTS system has demonstrated a superior potential for supporting studies dealing with the lake ice transition zone and associated hydrometeorological phenomena.

SECTION 5.0 RECOMMENDATIONS

As with any investigation for which some positive results are achieved, the need or desirability of additional work becomes evident by the degree of certainty with which the findings can be stated.

This work has produced some reasonable, yet still inconclusive, correlations between the lake freeze transition zone and regional climatology. The correlations are inconclusive only in that they strictly apply just to the 1972 freeze season. In order to substantiate that the transition zone does indeed influence the weather in its vicinity, at least one other ice year should be examined. The 1973 or 1974 ice years are prime candidates because of the availability of ERTS coverage.

The interdependence of lake ice and climate should be manifest by variations in numerous meteorological parameters: temperature, wind vector, precipitation, barometric pressure, cloud cover. Thus far only temperature has received what could be characterized as detailed analytical study. A closer examination of meteorological parameters and their sensitivity to the transition zone - beyond what has been attempted here - is a recommended course of action that would seem to have a good potential for being fruitful. In particular, the thaw season should receive the detailed scrutiny which the constraints of time and resources prevented during this investigation.

Should the interactive effects of lake ice and climate eventually become established and predictable, they would enable weather forecasts in central North America to be greatly improved, as well as contribute to our overall knowledge of earth-atmosphere coupling.

SECTION 6.0 REFERENCES

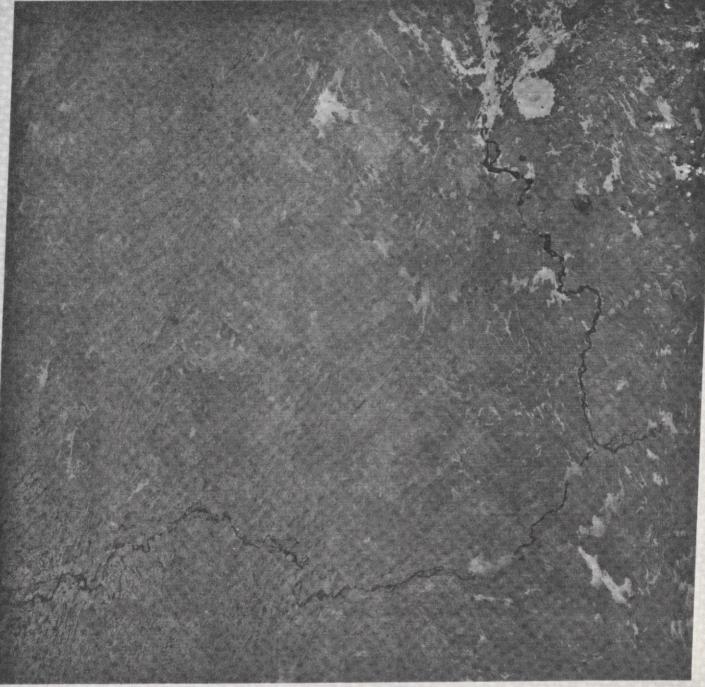
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PLATES 1 AND 2

Multispectral Scanner (MSS) views of the same ERTS-1 scene taken just south of Reindeer Lake, Saskatchewan on May 3, 1973. Plate 1 shows the MSS band 7 image; terrestrial features are subdued, but the open waters of the Reindeer River are readily apparent. Plate 2 is the identical scene in MSS band 5; the highly reflective ice-covered surfaces of the numerous small lakes of the region stand out in this image. The contrasting images illustrate the value of band 5 for detecting ice-covered lakes.

W104-001 W103-001



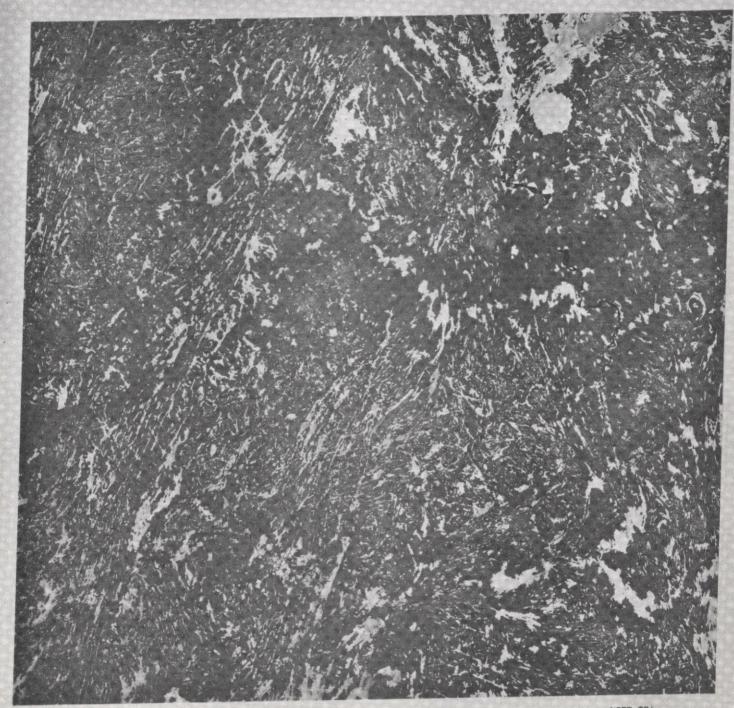
03MAY73 C N55-59/W104-04 N N55-57/W103-55 MSS 7 D SUN EL47 AZ151 195-3960-G-1-N-D-1L NASA ERTS E-1284-17325-7 01

PLATE 1

101

W104-001

M103-001



03MAY73 C N55-59/W104-04 N N55-57/W103-55 MSS 5 D SUN EL47 AZ151 195-3960-5-1-N-D-2L NASA ERTS E-1284-17325-5 01

PLATE 2

A view of the thaw transition zone in southern Saskatchewan on March 29, 1973. The South Saskatchewan River flows from south to north in the right-hand portion of the scene; the ice-covered reservoir created by the South Saskatchewan River Dam is well displayed in the lower right-hand corner, and the City of Saskatoon can just be discerned in the upper right-hand corner where the river ice disappears.

Numerous ice-covered, partially ice-covered, and ice-free lakes can be distinguished in the scene. The contrasting lake ice conditions are enhanced by a recent snowfall covering the southern half of the image.

IW107-00 IW108-00 IMI08-30

29MAR73 C NSI-41/M107-47 N NSI-38/M107-39 MSS 7 D SUN EL37 RZ149 193-3472-G-1-N-D-1L NASA ERTS E-1249-17400-7 01

PLATE 3

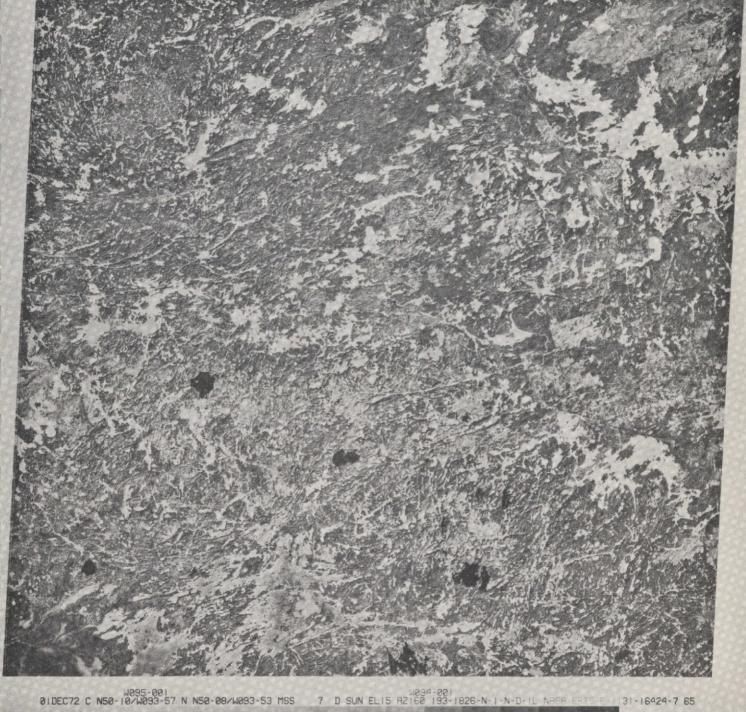
A view of the thaw transition zone in southern Saskatchewan on March 30, 1973. This plate is a consecutive day image of the same scene shown in Plate 3 with approximately 40% sidelap. Many tiny, ice free lakes are apparent along the trend of the previous day's snowfall. A comparison of the two plates reveals that a considerable amount of snow melting had occurred during the 24-hour period. Note that the percentage of ice-covered lakes increases to the north, and that in general only the larger lakes are ice-covered to the south.



30MAR73 C N51-42/N109-12 N N51-39/N109-05 MSS 7 D SUN EL38 AZ149 194-3486-G-1-N-D-1L NASA ERTS E-1250-17454-7 01

106

A view of the freeze transition zone in southwestern Ontario on December 1, 1972. Recently frozen Lake of the Woods is visible in the bottom-left of the image. The few ice-free lakes in the bottom half of the scene are quite apparent in this MSS band 7 image. These lakes comprise the northern transition zone boundary for that date.



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APPENDIX A SURVEY LAKE DIRECTORY

	LACE NAME	ID CODE	S/P-	LATITUDE	LONG ITUDE	
. 1	BAKER	010034	NVT	6412	9530	
2	UN-NAMED	010054	NWT	6845	10904	
3	DOG POND	010065	NWT	6320	9 04 Å	A CAMP CONTRACT OF MANAGEMENT AND ADDRESS OF THE OWNER, WHEN THE PARTY OF THE OWNER, WHEN THE
4	MISSIDN	010074	NWT	6320	9043	
5	POLICE	010085	NWT.	6320	9043	
6	UN-NAMED	010095	NWT	6912-	11838	
7,	UN-NAMED (2)	010104	NWI	6935	12045	
8	CONTWOYTO	010114	NWT	6529	11022	
9	ENNADAI	010124				,
10	GREATSLAVE/MCLDU	010134	NWT		10906	•
11	GREATSLAVE/CHARL	010144	NWT	6243	19906	
12	GREATSLAVE/RESO	010154	NWT	6111	11341	
13	UN-NAMED	010164	NWT.		9745	and the second second
14	UN-NAMED	010194	NWT	6839	10144	
15	MODULE	010214	NWT			
16	BA GNE_L	010224	NWT	6818	8 54 1	
17	LAKE BARROW	010254				Company or take a contract of the second
18	GREAT BEAR	010264	NWT	5605	11802	
19	UN-NAMED	010275	. NWT			
20	UN-NAMED	010304	NWT	6849	9325	
21	FR AME	010324	NWT.			
22	LONG	010334	NWT		11427	
23	BRACKETT	010340	NWT		12520	
24	STEWART	010350	NWT	6424	12518	
25	DARBY	010360	NWT.			and the second of the second o
26	JACQUES	010370	NWT	6610	12725	
27	BEAVERHILL	010380			10422	-
28	PILOT	010350	NWT	6019	11100	
29	PEERLESS	010400	NWT		11442	
30	BULMER	010410	NWT	6243	12045	
31	TROUT	019420	NWT			distance of the same of the sa
32	STE THERESE	019430	NWT	6438	12135	
33	UNNAMED	010440	NWT.			
34	MAUNDIR	010450	NWT	6730	12500	
35	BELOT	010460	NWT			
36	COLVILLE	010470	NWT	6710	12600	
37	DES BDIS	010480	NWT			and the second of the second o
38	CANSO	010490	NWT	6733	12705	
39	AUBRY	010500	NWT			-
40	YE CTED	010510	NWT	6655	12923	
41	LOON	010520	NWT			
42		010530	NWT		11320	
43		010540	NWT			and their suit had the state of the sale o
44	TATHLINA	010550	NWT	6033	11730	
45	BUFFA_O	010560	NWT			
46	MARA	010570	NWT	6525	10900	
47	REBECCA	010580	NWT		11622	• .
48	INGRAY	010590	NWT	6417	11606	and the second of the second o
49	HOTTAH	010600				
50	KAGLIK	010610	NWT	6926	12952	
51	COLD	020014	ALB		11017	
52	ATHABA SCA	020044	ALB	5843	11109	
53	BEAR	020054				The state of the s
54	LAC LA BICHE	020064	ALB	5446 5531	11158	
55	LESSER SLAVE	020074	ALU.	5521	11.459	

			LASE NAME	ID CODE.	-SZP-	LATITUDE	LONGITUDE	
						DEG MIN	DEG MIN	
							744 -	
		56 57	LAKE MINNEWANKA GLENMORE RESERVO	020084	ALB	5111	11534	
		57 58	NEWELL	020094 _	ALB		11401	
		59	WOLF	020100	ALB	5026 5441	11157 1058	
		60	WINEFRED	020120	ALB	5530	11030	
		61		020130		5415 <i></i>		
		62	CHIP	020140	ALB	5340	11525	
		63		030011		· · ·		
		64	JAN	030041	SAS	5455	10255	····
	(65	MIRONO	030051	SAS_			
	4	66	PEL ICAN	030061	SAS	5509	10300	
	•	67	MC INTOSH	030071	SAS		10500	
	•	68	WILDMEST	030101	SAS	5500	10220	
	•	69	ANNABEL	12 10 20	SAS	5450		
	. •	70	JOHNSON	030181	SAS	5451	10217	
	. •	71	TYRELL	030191	SAS	5453	10208	
	-	72	CONTACT	030231	SAS	5613	10343	*
,	•	73	WOLLASTON	030351	SAS	5815	. 10 320	
	•	74	AM I SK	030361	SAS	5433	10215	
	•	75	BIG PETER POND	030371	SAS	. 5600		
	-	76	LITTLE PETER PON	030381	SAS	5547	10835	
	7	77	ILE A LA CROSSE	030391	SAS	5527	10 750	
	7	78	EK APO	030414	SAS	5023	10235	
	7	79	CHURCHILL	030422	SAS	.5551		
		80	CREE	030432	SAS	5721	10650	
	8	3 1	LAC LA RONGE	030442	SAS	5509	10520	
	. · · · · · · · · · · · · · · · · · · ·	32	MEADOW	030454	SAS	5407	10326	
		93	WASCANA	030464	SAS	5.0.26	10445	
	6	34	BEAVERLODGE	930472	SAS	5934	10829	
		95	BIG OUTLL	030484	SAS	5146	10412	
		96	YORK	030494	SAS	5116	10223	
		37	REINDEER	030501	SAS	5729	10229	
		86	DEEP BAY	030510	SAS	5625	10300	
		39	JACKFISH	030520	SAS .		10824	
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		93	PR IMPOSE	030564	SAS .		10943	
	•	94	DAVY	030570	SAS	5852	10818	
		95	BASIN LAST MOUNTAIN	030580	SAS	5237		
		97		030590	SAS	5100	10514	
		9.7 9.8	KOHN GOOD SPIRIT	030600	SAS	.5916	* *************************************	
		99	CROOKED '	030610 030620	SAS	5133 5036	10249	
		00	FARNSWORTH	040014	SAS Man	5036 5845		
		71	ATHAPAPUSKOW	040014	MAN	C 4 7 7	9404	
		s	LAKE DAUPHIN	040043	MAN	5437 5106	10003	
		3	SCHIST	040052	MAN		10101	
) 4	LAKE WINNIPEG	640082	MAN	5038	9703	
		5	HE M ING	040093	MAN		10107	
		6	LYNN	040102	MAN	5652	10104	
		7	EL DON	040112	MAN	5652	10104	
	10		LAKE MANITOUA	040123	MAN	5009	9830	• •
	10		LITTLE PLAYGREEN	040134	MAN	5359	9750	
	1.1		LAKE WAHTOPANAH	040144	MAN	5001	10019	-
		1		040152	MAN	5402	10101	
	11		GR ACE	040164	MAN	5350	10110	
		3	SETTING	040172	MAN	5455	9838	

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		LACE NAME	ID CODE	S/P	LATITUDE DEG MIN	LONGITUDE DEG MIN	
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	115	BRERETON			4954		
	116	CADDY	040203	MAN	4949	9443	
	117		.040213	_MAN.	4942	9515	
	118	WEST HAWK	040223	MAN	4946	9511	
_	119	BARRINGTON	040233	MAN.	5656	10.015.	Appendix and a second s
	120	CEDAR	040243	MAN	5316	10009	
	121	CROSS	040253	MAN	5444	9.730	
	122	GOOSE	040263	MAN	5423	10125	
•	123	GR ANVILLE	040273	MAN_	5613		المستعدات والمستعدات
	124	ROCKY	040303	MAN	5409	10130	
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	128	WATERHEN	040343	MAN	5207	9935	
•	129	WHEATCROFT	040353	MAN			
	130	WHITE	040373	MAN	5002	9533	
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	132	RICE	040394	MAN	5102	9540	
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	136	FILE	040430	MAN		9825	
	137	KISKITTOGISU HERB	040440 040450	MAN	5410 5448	9952	
	138 139	AIKEN	040450			9520	
	140	G0D*S	040470	MAN.	5443	9408	7-2
	141	RANDO_PH	050024	ONT	5017	8854	
	142	NAM	050034	ONT	4845	9137	
	143	PLATEAU	050044	ONT	4845	9137	
•	144	STEEP ROCK	050054	ONT	4845	9137	
	145	LAKE KENDGAMISIS	050064	DNT	4941		
	146	KENDGAMISIS/BART	050074	ONT	4941	8657	
	147	LAKE OF THE WOOD	050104	DNT	4948	9422	
	148	ATTAWAPISKAT	050114	ONT	5214	8753	
	149	PICKLE	C50134	ONT	5127	9912	
	150	RED	050144	ONT	5104	9 34 9	
	151	PELICAN	050164	CNT	50.07	9 1 5.4	
	152	BIG TROUT	050174	ONT	5350	8952	
	153	PICNIC	050204	ONT	. 4836	8517	
	154	TOOKENAY	050214	ONT	4836	8517	
	155	NIPIGON	050250	ONT			
	156	ECHOING .	050260	THO	5432	9217	
	157	LITTLE SACHIGO.	050270	ONT	541.0		
	158	SACHIGO	050280	TMC	5349	9208	
	159	MAGISS	050290	ONT			
	160	WINDIGO	050300	ONT	5236	9135	
	161	TROUT	050310	ONT			to the country of the way of the
	162	WABIMIEG	050320	DNT ONT	5128 5053	8535 8343	
	163	PLEDGER	050330	ONT	5V53 5025	8522	
	164 165	JOG NAGAGAMI	050340 050350	TNO			
	166	WHITE	050350	ONT	4849	8538	
	167	SANDY BEACH	050370	ONT.			
•	168	SNOWDEN	050380	ONT	4932	9113	THE RESERVE A TRANSPORT AND ADMINISTRATION OF THE PARTY O
	169	SYDNEY		_ ,DNT			
	170	SILVER	050400	DNT	4953	9410	
**	171	SENACHWINE	060041	I.LL	4110	892 i	
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,		LAKE NAME	ID CODE	5/P-	LATITUDE LONGITUDE DEG MIN DEG MIN
		40.055	~~~~~~		A11A
	172 173	GDOSE PISTAKEE	060051	166	4114 8923 4223 8812
	174	HORSESHOE	060071	ILL	
	175	CHAUTAUQUA			4022 9000
	176	SPR ING	060091	ILL	
	177	FOX	060101		42258809
	178	CALUMET	060111	ILL	
	179	CL EAR			40258957
,	180	VERMILLION	060151	ILL	
	181	WAWASEE	070021		41248542
	182	WINONA	070031	IND	
	183	CEDAR	070051	IND	4122 8726
	184	SYRACUSE	070061	IND	4125 8544
	185	SPIFIT	080031	IWA	4328 9505
	186	MAC BRIDE	080551	AW I	4149 9134
	187	CORALVILLE	080061	I WA	4143 9132
	188	RED ROCK	080071	I WA	4122 9259
	189	RATHBUN	080081	IWA	4050 9254
	190	CL E AR	080990	I WA	4308 9325
	191	STORM	080100	IWA	4237
	192	UNION	090071	MCH	4203 8512
	193	BEAR	090103	MCH	44438437
	194	BIG PORTAGE	090113	MCH	4219 8415
	195	FINE	090133	MCH	4227
	196	MUSKEGON	090211	MCH	4314 8613
	197	GD GEB1 C	090220	MCH	. 4632
	198	HOUGHTON	090230	MCH	4429
	199	HIGGINS	090240	MCH	4429
	200	BIG STONE	100031	MIM	4519 9627
	201	BUFFALO	100041	MIN	45109354
	202	SHAGAWA	100051	MEN	4755 9154
	203	MILLE LACS	100060	MIN,	, .4615
	204	UPPER RED	100070	MIN	4807 9445 .
	205	LAKE OF THE WOOD	100080 .	MIN	. 4900
	206	WINNIBIGOSHISH	100090	MIN	4727 9410
	207	OTTER TAIL	100100	M[N	_ 4624 9540
	208	ALBERT LEA	100110	MIN	
	209	NETT	100120	MLN	4,807 9.30.7
	210	PELICAN	100130	MIN	
	211	WILD RICE	100140	MIN	
	212	WACONIA	100150	MIN	4453 9347
,	213	SWAN	100160	MIN	4418
	214	LEECH	100170	WIN	
	215	HAGEN	110031	NEB	
	216	MOON	110041	NEB	
	217	WILLOW	110051	NEB	
	218	BIG ALKALI	110091	NEB	
	219	DADS	110111	NE B	
	220	MARSH	110151	NEB	
	22 i	PELICAN .	110181	NEB	
	222	PED DEER	110201	NEB	
	223	SWAN	110211	NEB	
	224	TROUT	110221	NEB	
	225		110251	NEB	
	226	GOOSE	110261	NEB	_
	227	ISLAND	110281	NEB_	
	228	GEORGE	110291	NEB	
	229	SWAN	_110311	NEB	4143 10230

	LAKE NAME	ID CODE	S/P LATITUDE -LONGITUDE DEG MIN DEG MIN
230	JOHNSON	110320	NEB 4042 9950
231	MALONEY RES		
232	SWANSON	110340	NEB 4010 10107
233	ASHTABULA		NDA 4710 9800
234	SPIPITWOOD	120021	NDA 4711 9850
235	SAKAKAWEA _	120031	NDA 473510125
236	HEART BUTTE	120051	NDA 4636 10150
237	JAMESTOWN	120061	
238	MEDICINE	120071	NDA 4828 10425
239	BIG STONE	130011	SDA 4518 9628
240	LAKE HERMAN	130021	SDA 4400 9710
241	LAKE MADISON	130031	SDA 4357
242	LAKE KAMPESKA	130041	SDA 4455 9712
243	LAKE POINSETT	130051	SDA
244	LAKE ANDES.	130061	SDA 4309 9830
245	LAKE DAHE	130071	SDA . 4428 1.0030
246	LAKE SHARPE	130081	SDA 4348 9923
247	FRANCIS, CASE	130091	
248	LEWIS & CLARK	130101	
249	SHADEHILL	130111	
250	SWAN		SDA . 4545
25 t	BEAVER DAM	130120	SOA 4518 9952
252	ARBOR VITAE	140013	WIS 4330 8852
253		140023	WIS 4558 8939
	CAMP	140043	WIS 4232
254	CHAIN-O-LAKES	140053	WIS 4420 8910
255	DEVILS		.WIS4325
256	GENEVA	140093	WIS 4234 8830
257	ISLAND	140103	WIS 4608
258	KEGONSA	140123	WIS 4258 8915
259	MENDOTA	140153	WIS 43078925 /
260	MONONA	140183	WIS 4304 8922
. 261	NA GAWICKA	140193	WIS 4305 8823
262	ROCK	140213	WIS 4305 8854
263	SHELL	140233	WIS. 4544 . 9154
264	SPOONER	140243	WIS 4550 9149
265	SUMMIT	140253	WIS 4628 9215
266	TROUT	140263	WIS 4603 8940
267	WAUBESA	140273	WIS 4301 8319
268	WINGRA	140305	WIS 4303 8925
269	W I NNEB A GO	140313	WIS 4400 8824
270	BONE	140353	WIS 4532 9223
271	BROWNS	140373	WIS 4241 9815
272	MUD	140423	WIS 4242 8808
273	TURTLE	140453	WIS. 4614 8915
274	PEWAUKEE	149473	WIS 4305 8817
275	PINE	140481	WIS 4307 8823
276	NORTH(EAST)	140491	WIS 4309 8823
277	NORTH(WEST)	149501	WIS 4309 8823
278	OKAUCHEE	140511	WIS 4308 8826
279	OCONDAO MOC(MAIN)	140521	W1S . 4306
280	FOWLER	140531	WIS 4307 8830
281	LAC LA BELLE	140541	WIS 4308 8831
282	SILVER	140551	WIS 4305 8830
283	DELAVAN	140561	WIS 4237 8836
284	GREEN	140571	WIS 4349 8900
285		140581	WIS42498823
286	BIG CEDAR	140591	WIS 4323 8816
287	BUTTERNUT	140611	WIS 4558 9031

		- LACE NAME	ID CODE	ES/P	LATITUDE		
					DEG MIN	DEG MIN	
•	288	BE AR	140621	WIS	4538	9149	
And the second	289	PRAIRIE	140631			9141	
	290	RED CEDAP	140641	WIS	4536	9135	
	291	LOWER EAU CLAIRE	140651	WIS.	4616	9133	<u> </u>
	292	MIDDLE EAU CLAIR	140661	WIS	4618	9131	
-	. 293	NAMEKAGON	140671	WIS	4612	9107	
	294	UPPER EAU CLAIRE	140691	WIS	4619	9129	
	295		. 140711.	WIS	4550	9213	and the second s
	296	CLAM	140721	WIS	4548	9220	
•	297	YELLOW	140731		<u>. 4555</u>	9224	
	298	LONG	140751	WIS	4515	9124	
	299 300	WISSOTA	140761	WIS.		9.120	
	301	ARBUTUS FOX	140771	WIS	4426	9042	
	302	BARDON	140801			885.6	
	303	NEBAGAMON	140821	WIS	4613	9153	
	304	ST CROIX FLOWAGE	140941	.WIS		9 1.4.3	
	305	ALTOONA	140851 140881	WIS	4615	9152	
	306	EAU CLAIRE	140391	WIS . WIS			
	307	BUTTERNUT	140901		4446	9106	
	308	FRANKLIN	140911	WIS	4556	8900 8900	the first of the control of the cont
	309	KENTUCK	140921	WIS		8900	
	310	PINE	140941	WIS	4534	8859	
	311	KOSHKINONG	140951	WIS .		8859	
	312	CALDRON FALLS RE	140961	WIS	4521	8815	
	313	HIGH FALLS RESER	140971	WIS			
	314	CL EAR	140991	WIS	4552	8938	
	315	PEL ICAN	141001	WIS	4 530		
	316	SQUIPREL.	141021	WIS	4552	8954	
	317	TOMAHAWK	141031	WIS .	4550	8.94.0	7177 I = Augustin
	318	THUNDER	141041	WIS	4547	8913	
	319	BALSAY	141051	WIS	. 4528	9226	
	320	BIG ROUND	141061	WIS	4532	9219	
	321	CEDAR	141071	WIS	4513 .	9235 .	The state of the same of the s
	322	WAPOGASSET	141081	WIS	4520	9226	
	323	PIKE	141091	WIS.	4554	. 9004	
	324	ISLAND	141121	WIS	4519	9123	
	325	REDSTONE	141131	WIS		9.00.6	
	326 327	GR INDSTONE	141141	WIS	4556	9125	
	328	LAC COURT DREILL CHETEC	141151	R1W		9126	
	329	CHIPPEWA	141161	WIS	4542	9130	
	330	LOST LAND	141171	WIS.		9110	
	331	MOOSE	141181	WIS WIS	4606	9109	
	332	NELSON	141201		4601 4605		The secondary of the secondary seconds of the secondary o
	333	ROUND	141211		4601	9123	
	334	SPIDER	141221	WIS	4606	9119	The state of the s
	335	TEAL	141231	WIS	_	0.07	
	336	SHAWANO	141241	WIS	4448	8832	with the contract of the contr
	337	BIG ST GERMAIN	141251	WIS		8931	
	338	BIG MUSKELL UNGE	141261	WIS	4601	8937	
	339	BIG SAND	141271	WIS	4604	8850	·
	340	CRAWLING STONE	141291	WIS	4656	8953	****
	341	FENCE	141301	WIS	4557		of the same of the
	342	IKE WALTON	141321	WIS	4602	B 94 8	And the state of t
	343	LAC VIEUX DESERT	141331	WIS	4608	8907	
	344	PRESQUE ISLE	141351	WIS	4613	8947	
	345	COMO	141371	WIS	. 4236	8830	
-							

		·				
	LACE NAME	ID CODE	5/P	LATITUDE DEG MIN	LONGITUDE DEG MIN	-
346	NANCY	141401	WIS	4606	9200	y any supergraph public public party of the field of the
347	· · · · -	141421	WIS.	4417	885.3	
348	WHITE	141431	WIS	4422	8856	
349	· · · · ·		WIS	4322	8837	
350	PUCKAWAY	141451	WIS	4345	8912	
351	:	141461	WIS.	4.409		minutes and make the second second
352	RUSH	141471	WIS	4356	8 84 8	
353	CTATO	141481	WIS	4519	9.126	
354	ME TONGA	141491	WIS	4532	8855	
355	WILLOW RESERVOIR	141501		4543		and appropriate the constant and the second
356	NORTH TWIN	141511	WIS	4603	8908	
357	NOQUEBAY	141520	WIS	4516	8 7 55	-
-		-				
					•	
		=				

APPENDIX B SURVEY LAKE FREEZE/THAW HISTORY

	AKE: BAKER	ID CODE:	010034	
LAT: 64	12 N ARFA:	0.0 MAX DEPTH SO KM) MEAN DEPTH	. 0.0	
FREEZE/Th	AW—HISTORY			
	FREEZE DATE	DEVIATION	THAW DATE	 DEVIA <u>T</u> I
	OCT 16 1956 OCT 29 1957	<u>~8</u> 5	AUG 2 1957 JUL 29 1958	7
-	OCT 28 1958		JUL 31 1959 JUL 12 1960	-14
	OCT 21 1960 OCT 7 1961	- 3	JUL 17 1961	⊕ <u>©</u> ∧.
	OCT 24 1962 OCT 21 1963	- 3	JUL 30 1962 	- 5
	OCT 22 1964		JUL 21 1964 JUL 27 1965 JUL 23 1966	-5 1
	OCT 27 1965	y	AUC 1 1067	-3 6
	OCT 27 1967	3	JUL 28 1958	2
	OCT 30 1969		AUG 14 1969 Jul 13 1970	19 ~13
	NOV 6 1970 NOV 8 1971	1 =	JUL-18-1971 *********	-8
TOTA	OCT 22 1972	<u>-2</u>	* 家外水本水水水水水水	•
EARL	Y 'OCT 7	•	15 JUL 12	
LATE. Mean	OCT 24	8.37	AUG 14	0.45
NAME DF L STATE/PRO LAT: 63 LONG: 100	AKE: UN-NAMED V: NWT +5 N AREA:	ID CODE: C.C MAX DEPTH TO COLMADM (MM DI	:).0 1: 0.0 (METERS)	8 • 45
NAME OF L STATE/PRO LAT: 63 LONG: 100	AKE: UN-NAMED V: NWT +5 N AREA:	ID CODE: C.C MAX DEPTH TO COLMADM (MM DI	010054 :).0	
NAME DF L STATE/PRO LAT: 63 LONG: 100	AKE: UN-NAMED V: NWT V: NWT AREA: C: W AW HISTORY FREEZE DATE	ID CODE: C.C MAX DEPTHOOLEM, MEAN DEPTHOOLEM, MEAN DEPTHOOLEM, MEAN DEPTHOOLEM, MEAN DEVIATION	010056 :).0 : 3.0 (METERS)	DEVIATI
NAME DF L STATE/PRO LAT: 63 LONG: 100	AKE: UN-NAMED V: NWT +5 N AREA: -3-W (S AW HISTORY FREEZE DATE = ***********************************	ID CODE: C.C MAX DEPTH CO.KM) MEAN DEPTH NUMBER OF ENTR-19 DEVIATION	010050 :).0 : 3.0 (METERS) ES: B THAW DATE JUL 18 1963 JUL 1 1966	
NAME DF L STATE/PRO LAT: 63 LONG: 100	AKE: UN-NAMED V: NWT WE N AREA: C W (S AW HISTORY FREEZE DATE *********** OCT 1 1566 SEP 21 1567	ID CODE: C.C MAX DEPTHOMEAN_DEPTHOMEAN_DEVIATION -6	010050 :).0 : 3.0 (METERS) :S: B THAW DATE JUL 18 1963 JUL 1 1965 ************************************	DEVIATI 9
NAME DF L STATE/PRO LAT: 63 LONG: 100	AKE: UN-NAMED V: NWT +5 N AREA: -5 W (S AW HISTORY FREEZE DATE -************************************	ID CODE: C.C MAX DEPTHOM MEAN DEPTHOM MEAN DEPTHOM DEVIATION -6 -16 -7	010050 :).0 : 3.0 (METERS) :S: B THAW DATE JUL 18 1963 JUL 1 1965 ************************************	DEVIATI 9 -8 -1 6
NAME OF L STATE/PRO LAT: 63 LONG: 100	AKE: UN-NAMED V: NWT WE N AREA: AW HISTORY FREEZE DATE ********** OCT 1 1966 SEP 21 1967 SEP 30 1969 OCT 10 1969 SEP 27 1970	ID CODE: C.C MAX DEPTHOM MEAN DEPTHOM MEAN DEPTHOM DEVIATION -6 -16 -7 -7 -3 -10	010050 1: 0.0 (METERS) ES: B THAW DATE JUL 18 1963 JUL 1 1966 *** *** *** *** JUL 8 1969 JUL 15 1969 JUL 15 1969 JUL 6 1970 JUL 7 1971	DEVIATI 9 -8
NAME OF L STATE/PRO LAT: 63 LONG: 100	AKE: UN-NAMED V: NWT +S N AREA: -S-W. (S AW HISTORY FREEZE DATE -************************************	ID CODE: C.C MAX DEPTHOM MEAN DEPTHOM MEAN DEPTHOM DEVIATION -6 -16 -7	010056 :).0 GMETERS) :S: B THAW DATE JUL 18 1963 JUL 1 1965 *** *********************************	DEVIATI 9-8 -1-6
NAME DF L STATE/PRO LAT: 63 LONG: 100 FREEZE/TH	AKE: UN-NAMED V: NWT +5 N AREA: -4-W. (S AW HISTORY FREEZE DATE *********** OCT 1 1566 SEP 21 1567 SEP 20 1567 SEP 30 1567 SEP 30 1569 OCT 10 1569 SEP 27 1570 NOV 9 1971 L. 6 Y SEP 21 NOV 9	ID CODE: C.C MAX DEPTHOM MEAN DEPTHOM MEAN DEPTHOM DEVIATION -6 -16 -7 -7 -3 -10	010050 :).0 (%: 3.0 (METERS) :S: B THAW DATE JUL 18 1963 JUL 1 1966 ***********************************	DEVIATI 9-8-1-6-3
NAME DF L STATE/PRO LAT: 63 LONG: 100 FREEZE/TH:	AKE: UN-NAMED V: NWT WE N AREA: AW HISTORY FREEZE DATE *********** OCT 1 1566 SEP 21 1567 SEP 30 1968 OCT 10 1969 SEP 27 1970 NOV 9 1971 Y SEP 21 NOV 9	ID CODE: C.C MAX DEPTHOM MEAN DEPTHOM MEAN DEPTHOM DEVIATION -6 -16 -7 -7 -3 -10	010056 :).0 GMETERS) :S: B THAW DATE JUL 18 1963 JUL 1 1965 *** *********************************	DEVIATI 9-8 -1-6
NAME DF L STATE/PRO LAT: 63 LONG: 100 FREEZE/TH EARL LATE MEAN	AKE: UN-NAMED V: NWT WE N AREA: AW HISTORY FREEZE DATE ********** OCT 1 1566 SEP 21 1567 SEP 30 1969 OCT 10 1969 SEP 27 1970 NOV 9 1971 Y SEP 21 NOV 9 OCT 7	ID CODE: C.C MAX DEPTHOM MEAN DEPTHOM MEAN DEPTHOM DEVIATION -6 -16 -7 3 -10 33	010050 1: 0.0 (METERS) 	DEVIATI 9 -8 -1 6 -3 -2
NAME OF L STATEZPRO LAT: 63 LONG: 100 FREEZEZTH: LATE MEAN NAME OF L STATEZPRO	AKE: UN-NAMED V: NWT +S N AREA: -S-W (S AW HISTORY FREEZE DATE ********** ********** OCT 1 1566 SEP 21 1567 SEP 30 1568 OCT 10 1969 SEP 27 1970 NOV 9 1971 Y SEP 21 NOV 9 OCT 7 AKE: DOG POND V: NWT	ID CODE: C.C MAX DEPTHOM MEAN DEPTHOM MEAN DEPTHOM DEVIATION -6 -16 -7 -3 -10 -33 -16.02	010056 :	DEVIATI 9 -8 -1 6 -3 -2
PREEZEYTH: LATE FREEZEYTH: LATE MEAN NAME OF LATE S. NAME OF LATE S. NAME OF LATE LATE ATTE S. NAME OF LATE LATE ATTE A	AKE: UN-NAMED V: NWT +5 N AREA: -3-W (S AW HISTORY FREEZE DATE #********** OCT 1 1566 SEP 21 1567 SEP 30 1568 OCT 10 1569 SEP 27 1570 NOV 9 1971 L SEP 21 NOV 9 OCT 7 AKE: DOG POND V: NWT — 20 N AREA:	ID CODE: C.C MAX DEPTH C.KM) MEAN DEPTH NUMBER OF ENTR-19 DEVIATION -6 -16 -7 -3 -10 -33 -10 -33 ID CODE: O.C MAX DEPTH: O.C MAX DEPTH:	010050 :	DEVIATIO -6 -1 -3 -2
PREEZE/TH: LONG: 100 PREEZE/TH: LATE MEAN NAME OF L. STATE/PROL LAT: 63 LONG: 90	AKE: UN-NAMED V: NWT +S N AREA: -S-W (S AW HISTORY FREEZE DATE EX********* *********** OCT 1 1566 SEP 21 1567 SEP 30 1568 OCT 10 1569 SEP 27 1570 NOV 9 1971 Y SEP 21 NOV 9 OCT 7 AKE: DOG POND V: NWT	ID CODE: C.C MAX DEPTH C.KM) MEAN DEPTH NUMBER OF ENTR-19 DEVIATION -6 -16 -7 -3 -10 -33 -10 -33 ID CODE: O.C MAX DEPTH: O.C MAX DEPTH:	010056 :	DEVIATI 9 -8 -1 6 -3 -2
PREEZE/TH: LONG: 100 PREEZE/TH: LATE MEAN NAME OF L. STATE/PROL LAT: 63 LONG: 90	AKE: UN-NAMED V: NWT +S N AREA: -S-W (S AW HISTORY FREEZE DATE EX********* *********** OCT 1 1566 SEP 21 1967 SEP 30 1968 OCT 10 1969 SEP 27 1970 NOV 9 1971 Y SEP 21 NOV 9 OCT 7 AKE: DOG POND V: NWT 20 N AREA: 63 W (S	ID CODE: C.C MAX DEPTHOM MEAN DEPTHOM MEAN DEPTHOM OEVIATION -6 -7 -7 -3 -10 -33 -10 -33 ID CODE: O.C MAX DEPTHOM MEAN DEPTHOM MEAN DEPTHOM	010056 :	DEVIATI 9-8 -1 6-3 -2
NAME OF L STATE/PRO LAT: 63 LONG: 100 FREEZE/TH: LATE MEAN NAME OF L STATE/PRO LAT: 63 LONG: 90	AKE: UN-NAMED V: NWT +S N AREA: -S-W (S AW HISTORY FREEZE DATE EX********* *********** OCT 1 1566 SEP 21 1567 SEP 30 1568 OCT 10 1569 SEP 27 1570 NOV 9 1971 Y SEP 21 NOV 9 OCT 7 AKE: DOG POND V: NWT	ID CODE: C.C MAX DEPTHOM MEAN DEPTHOM MEAN DEPTHOM OEVIATION -6 -16 -7 -3 -10 -33 -10 -33 -10 -33 -10 -33 -10 -33	010056 :	DEVIATI -8 -1 -3 -2 5.70

		FREEZE DATE -OCT9-1966- SEP 21 1967 OCT 19 1968	5 5	THAW DATE JUN 30 1967 JUL 1 1968 *********	DEVIATION -3 -2
	TOTAL EARLY LATE MEAN	SEP 21 OCT 19 OCT 4	8.85	JUN 12 JUL 26 JUL 3	13.17
4.	NAME OF LAKE	: MISSION	ID CODE:	010074	
	STATE/PROV: LAT: 63 20 LONG:> 90 43	N ARFA:	O.O MAX DEPTH: (SQ KM) MEAN DEP 1H	0.0 1: 0.0 (METERS)	
·	FREEZEZTHAW	HISTORY	NUMBER-OF-ENTRIE	S\$- 1/0	
		FREZZE DATE OCT 5 1963 OCT 5 1964 SEP 27 1965 OCT 11 -1966 OCT 5 1967 OCT 22 1968	-5 -5 -13 -13 -5 12	THAW DATE JUL 10 1964 JUL 11 1965 JUL 3 1966 JUL 12 1967 JUL 12 1963 JUL 17 1969	CEVIATION G 1 -7 2 2 7
	TOTAL	OCT 18 1959 OCT 4 1970 NOV 9 1971 SEP 24 1972 10	-6 30 -16	JUL 9 1970	-i
		—SEP∴24 NOV 9	<u> </u>	= JUL 3 JUL 17	4.43
5•	_LAT:63 20	OCT 10 POLICE NWT NWT AREA:	C.OMAX DEPT E	. 9. C	
5.	MEAN	OCT 10 POLICE NWT D-N AREA:	io cos:	010085 : 0.0 (: 0.0 (METERS)	
5•	MEAN NAME OF LAKE STATE/PROV: LAT: -63 20 LUNG: 90 43 FREEZE/THAW	OCT 10 POLICE NWT	ID CODE:C.CMAX DEPTH: (SQ KM) MEAN DEPTH NUMBER OF ENTRIS DEVIATION 1 7	010035 : 0.0 :: 0.0 (METERS) ES: 5 THAW DATE JUL 10 1964 JUL 5 1965 JUL 10 1967 JUL 10 1967 JUL 11 1968	
5.	MEAN NAME OF LAKE STATE/PROV: LAT: -63 20 LUNG: 90 42 FREEZE/THAW TOTAL EARLY LATE MEAN	OCT 10 POLICE NWT NNT AREA: W HISTORY FREEZE DATE *********** OCT 5 1964 SEP 27 1965 OCT 11 1966 OCT 3 1967 A 2 27 OCT 11 1967 A 2 27 OCT 11 1967 A 2 27 OCT 11 1967	ID CODE:C.CMAX DEPTH: (SQ KM) MEAN DEPTH NUMBER OF ENTRIS DEVIATION 1 7	010085 : 9.0 :: 0.0 (METERS) ES: 5 THAW DATE JUL 10 1964 JUL 5 1965 JUL 10 1967 JUL 10 1967 JUL 11 1968 5 JUN 30 JUL 11 1968 JUL 11 1968	DEVIATION 3 -2
6.	MEAN NAME OF LAKE STATE/PROVI LAT: -63 20 LUNG: 90 43 FREEZE/THAW TOTAL EARLY LATE MEAN NAME OF LAKE	######################################	ID CODE:C.OMAX DEPTH: (SO KM) MEAN DEPTH: NUMBER OF ENTRIS DEVIATION 1 7 -1	010085 :	DEVIATION 3 -2 -7 -3 4
6.	MEAN NAME OF LAKE STATE/PROVI LAT: -63 20 LUNG: 90 43 FREEZE/THAW TOTAL EARLY LATE MEAN NAME OF LAKE STATE/PROVI LAT: 69 13 LUNG: 118 38	POLICE NWT AREA: W HISTORY FREEZE DATE ************ OCT 5 1964 SEP 7 1966 OCT 11 1966 OCT 3 1967 A	TO CODE: C.C MAX DEPTH: (SO KM) MEAN DEPTH: NUMBER OF ENTRIE DEVIATION 1 -7 -1 -1 5.00	010085 :	DEVIATION 3 -2 -7 -7 -3 -4
6.	MEAN NAME OF LAKE STATE/PROVI LAT: -63 20 LUNG: 90 43 FREEZE/THAW TOTAL EARLY LATE MEAN NAME OF LAKE STATE/PROVI LAT: 69 13 LUNG: 118 38	POLICE NWT AREA: W HISTORY FREEZE DATE ************ OCT 5 1964 SEP 7 1966 OCT 11 1966 OCT 3 1967 A	TOTCODE: -C.C	010085 :	DEVIATION -2 -7 -7 -6 -4.17

NAME OF LAKE STATE/PROVE	NWI	T								
LAT: 69 39 LUNG: 120 49		ARE	<u> </u>	0.0 (SQ KM)	MAX DEPT		0			
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	SEP		: 982 :983		10 -5	אט כ	15	1963		5
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	0CT		\$58 \$59		1 13	JUL		1969 1970		10
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TOTAL EARLY	11 SEP						6			
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										T
NAME OF LAKE			0		io cope:	010114				
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						(METE	RS)			
FREEZEZTHAW	HISTO	R Y		NUMBER	R-OF-ENTR	1ES:	y			
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FREEZE/THAW	FREE****		TE ***	DEVI		TH/	 AW DAT	968	· -	4
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FREEZE/THAW	FREE **** **** ****	ZE DA ***** ***** ***** 10 1	下庄 玄冰水 : 水水水	ĐEVI	IATION	TH, JUL JUL JUL	AW DAT 15 1 30 1 17 1	968 969 970 971	1	4
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TOTAL EARLY LATE	FREE ***** **** **** OCT OCT OCT OCT	ZE DA ****** ****** ***** 14 1 22 1 7 1	TE *** *** 970 971	DEVI	1ATION -7-8-7-7	TH/ JUL JUL ++** ****	AW DAT 15 1 17 1 17 1 13 1 *******	968 969 970 971	<u> </u>	4 1 2 6
TOTAL EARL Y	FREE **** **** **** *** *** *** *** *** **	ZE DA ****** ****** ***** 14 1 22 1 7 1	TE *** *** 970 971	DEVI	1ATION -7-8-7-7	TH/ JUL JUL JUL * * * * *	AW DAT 15 1 17 1 17 1 13 1 *******	968 969 970 971	1	4 1 2 6
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TOTAL EARLY LATE MEAN NAME OF LAKE STATE/PROV: LAT: 61 8	FREE **** **** OCT	ZE DA ※不字法 ※中中中末 *** * * * * * * * * * * * * * * * * *	TE *** *** 970 971 972	6.1	IATION 8 -7 10 CUDE:	JUL JUL JUL JUL **** JUL JUL JUL	AW DAT 15 1 30 1 17 1 17 1 17 1 17 1 18 1 18 1 18 1 18	968 969 970 971	<u> </u>	4 1 2 6
TOTAL EARLY LATE MEAN NAME OF LAKE STATE/PROV:	FREE **** **** OCT	ZE DA ※不字法 ※中中中末 *** * * * * * * * * * * * * * * * * *	TE *** *** 970 971 972	6.1	IATION 8 -7 10 CUDE:	JUL JUL JUL **** JUL JUL JUL JUL 313124	AW DAT 15 1 30 1 17 1 13 1 ********************************	968 969 970 971	<u> </u>	4 1 2 6
TOTAL EARLY LATE MEAN NAME OF LAKE STATE/PROV: LAT: 61 8 LONG: 100 55	FREE **** **** **** OCT	ZE DA ※ 本 * * * * * ※ 本 * * * * * 1	TE *** *** 970 971 972	0.0 SQ_KM)	IATION 7 8 -7 -7 -10 CODE: MAX DEPTI	JUL JUL JUL **** JUL JUL JUL JUL 21 21 24 F: 0.00 TH:0.0	AW DAT 15 1 30 1 17 1 17 1 17 1 17 1 13 1 13 30 19	968 969 970 971	<u> </u>	4 1 2 6
TOTAL EARLY LATE MEAN NAME OF LAKE STATE/PROV: LAT: 61 8	FREE **** **** **** OCT	ZE DA ※ 本 * * * * * ※ 本 * * * * * 1	TE *** *** 970 971 972	0.0 SQ_KM)	IATION 8 -7 10 CUDE:	JUL JUL JUL **** JUL JUL JUL JUL 21 21 24 F: 0.00 TH:0.0	AW DAT 15 1 30 1 17 1 17 1 17 1 17 1 13 1 13 30 19	968 969 970 971	<u> </u>	4 1 2 6
TOTAL EARLY LATE MEAN NAME OF LAKE STATE/PROV: LAT: 61 8 LONG: 100 55	FREE **** **** **** OCT	ZE DA ※ * * * * * * * * * * * * * * * * * * *	TE **** 970 971 972	O+0 SQ KM) NUMBER	IATION 18 17 18 17 10 10 10 10 10 10 10 10 10 10 10 10 10	JUL JUL JUL **** JUL JUL JUL JUL 21 21 24 F: 0.00 TH:0.0	AW DAT 15 1 30 1 17 1 17 1 17 1 17 1 13 1 13 30 19	968 969 970 971	<u> </u>	4 1 2 6
TOTAL EARLY LATE MEAN NAME OF LAKE STATE/PROV: LAT: 61 8 LONG: 100 55	FREE **** ##** ##** OCT OCT OCT OCT OCT OCT OCT OCT OCT OC	ZE DA ***** **** **** *** *** 7 22 1 7 21 4 ADAI ARE	TE ************************************	DEVI	IATION 7 8 -7 7 14 ID CODE: MAX DEPTI MEAN_DEP	TH/ JUL JUL **** **** JUL JUL JUL CO.0 TH: 0.0 METER	AW DAT 15 1 30 1 17 1 17 1 17 1 17 1 18 1 18 1 19 1 19 1 19 1 19 1 19 1 19 1 19 1 19 1 10 1	968 969 971 *** ***	6 • 6	4 1 2 6
TOTAL EARLY LATE MEAN NAME OF LAKE STATE/PROV: LAT: 61 8 LONG: 100 55	FREE 24 OCT 2	ZE DA ※不学来 中中中中 10 11 722 1 7 1 722 14 ADAI AREA ADAI AREA 24 DAI ************************************	TE *** 970 971 972 A:	O.O SQ.KM) NUMBER	IATION 3 3 -7 4 ID CODE: MAX DEPTI MEAN_DEP OF ENTR	JUL JUL JUL **** JUL JUL JUL JUL 310124 F: 0.0 (METER (METER JUN JUL THA	AW DAT 15 1 30 1 17 1 13 1 ************************************	968 969 971 *** ***	6 • 6	4 1 2 6 5
TOTAL EARLY LATE MEAN NAME OF LAKE STATE/PROV: LAT: 61 8 LONG: 100 55	FREE **** **** **** *** ** ** ** ** ** ** **	ZE DA ************************************	TE **** 970 971 972	O+0 SQ KM) NUMBER DEVI	IATION 2 8 -7 -7 -4 -ID CODE: MAX DEPTI MEAN_DEP -OF ENTR: ATION 5 3	JUL JUL JUL **** JUL JUL JUL 10.0 METER JUN THA JUN JUL JUL JUL	AW DAT 15 1 30 1 17 ! 13 1 ******* 4 13 30 19 	968 969 971 *** *** \$ 955 955	0.6 DEVIA	4 1 2 6 5
TOTAL EARLY LATE MEAN NAME OF LAKE STATE/PROV: LAT: 61 8 LONG: 100 55	FREE 2 **** FREE 2 **** FREE 2 **** OCT 2 OCT 3 OCT 2 OCT 3 OCT	ZE DA ************************************	TE *** 9771 9772 A: (O.O SQ.KM) NUMBER DEVI	IATION 2 8 7 7 4 ID CODE: MEAN_DEP MEAN_DEP ATION 5 3 2 0	JUL JUL JUL **** JUL JUL JUL 10.0 METER METER JUN JUL JUL JUL JUL	AW DAT 15 1 30 1 17 1 17 1 13 1 14 ** * * * * * * * * * * * * * * * * *	968 969 971 *** *** \$ 955 955	DEVIA	4 1 2 6 5
TOTAL EARLY LATE MEAN NAME OF LAKE STATE/PROV: LAT: 61 8 LONG: 100 55	FREE 2 **** **** **** **** *** *** *	ZE DA ※ * * * * * * * * * * * * * * * * * * *	TE *** 9971 9971 4:	DEVI 0.0 SQ KM) NUMBER DEVI 1	IATION 9 9 -7 -7 A ID CODE: MAX DEPTI MEAN_DEP OF ENTR ATION 5 3 2 0 3	TH/ JUL JUL **** JUL JUL JUL JUL THA JUL	AW DAT 15 1 17 1 17 1 17 1 17 1 18 1 18 1 19 1 19 1 10 1 11 1	968 969 971 *** *** \$ 55 956 9957 9959 9960	0.6 DEVIA	4 1 2 6 5 5 T 2 2 1 3 2 1
TOTAL EARLY LATE MEAN NAME OF LAKE STATE/PROV: LAT: 61 8 LONG: 100 55	FREE 2 **** **** **** **** **** ***	ZE DA ***** ***** **** 22 1 7 1 7 22 14 ADAI ARE ADAI 18 19 18 19 18 19 18 19 18 19 18 19 18 19	T E *** 9971 9971 4: (0.0 SQ KM) NUMBER DEVI	IATION 7 8 -7 -7 -7 -7 -7 -7 -7 -7 -7 -7 -7 -7 -7	TH/ JUL JUL 310124 1000 11124 1112	AW DAT 15 1 17 1 17 1 17 1 17 1 18 1 18 1 19 1 19 1 10 1 11 1	968 969 971 *** *** \$ 5 955 956 958 959	DEVIA	\$ 126 5 5
TOTAL EARLY LATE MEAN NAME OF LAKE STATE/PROV: LAT: 61 8 LONG: 100 55	FREE **** **** **** *** *** *** ** ** ** **	ZE DA ************************************	TE *** 970 9571 972 A: (0.0 SQ KM) NUMBER DEVI	IATION O B -7 A ID CODE: MAX DEPTI MEAN.DEP OF ENTR: ATION S 3 2 0 3 2 3 8	TH/ JUL	AW DAT 15 1 17 1 17 1 17 1 17 1 13 1 18 1 19 1 19 1 10 1 11 9 1 11	968 969 971 *** *** 5567 9958 9959 960 963	DEVIA	4126 5
TOTAL EARLY LATE MEAN NAME OF LAKE STATE/PROV: LAT: 61 8 LONG: 100 55	FREE **** **** OCT OCT OCT OCT OCT OCT	ZE DA ※ 本 本 本 本 本 本 本 本 本 本 本 本 本 本 本 本 本 本 本	TE *** 9571 1 E ** 9571 1 E ** 9572 A: (DEVI 0.0 SQ KM) NUMBER DEVI	IATION O B -7 A ID CODE: MAX DEPTI MEAN.DEP OF ENTR: ATION S 3 2 0 3 2 3 8	TH/ JUL JUL 310124 1000 11124 1112	AW DAT 15 1 17 1 17 1 17 1 17 1 18 1 19 1 19 1 10 1 10 1 11 1	968 969 971 *** *** \$ 55 955 9957 9959 961 962	DEVIA	4126

ORIGIO OF POOR QUALITY

		FREEZE		DEVIATION	THAW DATE	DEVIATIO
	·		1967	3	JUL-171967 JUL 9 1968	3
		NOV 3.	1968 1969	13 -3	JUL 21 1969 JUN 25 1970	15 -11
		OCT 10	1970	-11	JUN 22 1971	-14
	TOTAL	OCT 14 17	1972	-7	<u>* **********</u> 17	
	EARLY	OCT 8 NOV3		•	SS_NNC	
	MEAN	OCT 21		7.90	JUL 6	8.71
10-	NAME OF LAK	F: GREATS	A V = 7	MCLOU ID CODE:	01 31 34	
	STATE/PROV:	NWT				
	LONG: 109			O.O MAX DEPTH: -4 SQ -KM)MEAN DEPTH		
					(METERS)	
	FREEZEZTFAW	HISTORY		NUMBER OF ENTRIS	:S:18	allo della con a con a con a con a consequent
		FREEZE	DATE	DEVIATION	THAW DATE	DEV 1AT IO
					JUL 6 1953	L,
		0CT 27 NOV 7		-21 -10	JUN 30 1954 JUN 21 1955	-2 -11
		NOV 12	1955		J ∪L·-1-81.956	16
		*****			JUN 24 1958	-8
		****			JUL 14 1959 JUN 28 1960	12
	•	****		•	JUL 4 1962	2
		NOV -15			JUN 24 1963	- 6
		NOV 18 NOV 11	1964 1965	-6	######################################	-8
•		-NOV-11-	1965		JUL 21 1967	19
		****			JUL 6 1968	4,
		NOV 22			JUL 10 1969 JUN 21 1970	- 11
		DEC 15	1970	23	JUN 23 1971	-9
			.19 <u>71</u> 1972			
	TOTAL	11	1972	-1	容革本家事士米米安东 ** 15	
	EARLY	OCT 27			JUN 21	
	LATE MEAN	DEC 15		10.71	inr sī	
	MEAN	NOV 17		12.71	JUL 2	9•65
11.	NAME OF LAK	E. CDEATS	A VE //	HARL ID CODE:	010144	-
	STATE/PROV:	NWT				
	LAT: 62 4 LONG: 109	3 N AF	CE A	(SQ KM) MEAN DEPTH:	0.0	
				(30 KM) MEAN DEP IN	(METERS)	
	FREEZEZTHAW	HISTORY		NUMBER OF ENTRIS	S: 11	
						=
		- CD C C C C - C	-A-T-62	DEMI ATTEND		
		PRESZE S NOV 13	1955	DEVIATION O	THAW DATE	DEVIATIO
		NOV 25	1957	12.	*****	~
		NOV 5 NOV 2	1959		JUN 28 1960	2
		NOV5	1.961	-11 	* ********** ******	
	•	NOV 15	1952	2	JUN 21 1963	-5
		NOV 28	1968	15	JUL 7 1959	11
		NOV 15	1959 1971	2 - 3	JUN 17 1970 JUN 17 1971	
		<u>NOV 15</u>	1971	2	JUL 2 1972	6
	TOTAL	NOV 5	1972	-8	*******	-
	TOTAL EARLY	NOV2		•	7 JUN_17_	
	LATE MEAN	NOV 28 NOV 13		7.91	JUL 7	

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LAT: 61 1		A: 0.0	MAX DEPTH	н:0.0	
LONG: 113 4:	1 W	(SO KM)	MEAN-DEP-1	(METERS)	
FREEZE/THAW	HISTORY	ВМИИ	ER OF ENTRI	ES: 17	en en enemen e
,	FREEZE DA		VIATION	THAW DATE	DEV
		957	1 0 8	JUN-24 1957 MAY 29 1958	-
, , , , , , , , , , , , , , , , , , ,	NOV 28 1	\$58 ***	_12	JUN 13 1959 JUN 11 1960	
	NOV 12 1	960	-4 -27	JUN 15 1961 JUN 26 1962	
	DEC 7 1	962	21	JUN 6 1963	-
		963 964	- 3	JUN 23 1964 JUN 16 1965	 -
		965 ° 966	9 10	JUN 3 1966 *******	
	NCV 12 1	967 9 68	-4° -9	######################################	
	NQV9 1	969	7	JUN 10 1970	_
		970 971	-8 -3	MAY 26 1971 JUN 2 1972	•
TOTAL	<u>- NOV -5 1</u> 16	972	-11	∵∵∵™AY 26 1973 : 15	• •
EARLY LATE	DEC 7			MAY 24 JUN 26	
MEAN	ที่บัง 15	11	.44	JUN 10	ò
NAME OF LAK STATE/PROV: LAT: 68 4 LONG: 97 4: FREEZE/THAW	NWT ON ARE 8 W	A: 0.0 (SQ KM)	MAX DEPTH MEAN DEPT MEAN DEPT ER OF ENTAI	: 0.0 H: 0.0 (METERS)	
STATE/PROV: LAT: 68 4: LONG: 97 4:	NWT O N ARE 8 W HISTORY FREEZE DA	A: (SQ KM) NUMB	MAX DEPTH MEAN DEPT ER OF ENTAL	: 0.0 H: 0.0 (METERS) ES: 11	DEV
STATE/PROV: LAT: 68 4: LONG: 97 4:	NWT ON ARE 8 W HISTORY FREEZE DA SEP 20 1 SEP 15 1	A: 0.0 (SQ KM) NUMB TE DE 552 963	MAX DEPTH MEAN DEPT ER OF ENTAL VIATION -7	#: 0.0 H: 0.0 (METERS) ES: 11 THAW DATE JUL 17 1963 JUL 28 1964	DEV
STATE/PROV: LAT: 68 4: LONG: 97 4:	NWT O N ARE 8 W HISTORY FREEZE DA SEP 20 1 SEP 15 1 SEP 21 1	A: 0.0 (SQ KM) NUMB TE DE \$62 963 954 \$65	MAX DEPTH MEAN DEPTH FOR THE MEA	: 0.0 H: 0.0 (METERS) ES: 11 THAW DATE JUL 17 1963 JUL 28 1964 AMMERICAN AND AND AND AND AND AND AND AND AND A	
STATE/PROV: LAT: 68 4: LONG: 97 4:	NWT 0 N ARE 8 W HISTORY FREEZE DA SEP 20 1 SEP 15 1 SEP 21 1 SEP 21 1 OCT 8 1	A: 0.0 (SQ KM) NUMB TE DE 552 963 964 565 957	MAX DEPTH MEAN DEPTH PROPERTY OF ENTALE PROPERTY OF	THAW DATE JUL 17 1963 JUL 28 1964 ********** JUL 11 1966 JUL 10 1967 JUL 17 1968	DEV
STATE/PROV: LAT: 68 4: LONG: 97 4:	NWT 0 N ARE 8 W HISTORY FREEZE DA SEP 20 1 SEP 15 1 SEP 21 1 OCT 8 1 OCT 8 1 OCT 5 1 SEP 21 1	A: (0.0 (SQ KM) NUMB TE DE 552 963 954 965 965	MAX DEPTH MEAN DEPTH MEAN DEPTH PT	THAW DATE THAW DATE JUL 17 1963 JUL 28 1964 ********** JUL 11 1966 JUL 10 1967 JUL 17 1969 JUL 20 1969 JUL 20 1970	
STATE/PROV: LAT: 68 4: LONG: 97 4:	NWT 0 N ARE 8 W HISTORY FREEZE DA SEP 20 1 SEP 15 1 SEP 21 1 OCT 8 1 OCT 8 1 OCT 8 1 OCT 5 1 SEP 21 1 OCT 5 1 SEP 30 1	A: 0.0 (SQ KM) NUMB TE DE \$62 963 964 965 965 966 966 967 968 969	MAX DEPTH MEAN DEPTH MEAN DEPTH PT	THAW DATE JUL 17 1963 JUL 28 1964 A********* JUL 11 1965 JUL 10 1967 JUL 20 1969 JUL 20 1970 JUL 20 1970 JUL 20 1971 A***********	
STATE/PROV: LAT: 68 4: LONG: 97 4:	NWT 0 N ARE 8 W HISTORY FREEZE DA SEP 20 1 SEP 15 1 SEP 21 1 OCT 8 1 OCT 8 1 OCT 8 1 OCT 5 1 SEP 21 1 OCT 5 1 SEP 30 1	A: 0.0 (SQ KM) NUMB TE DE \$62 963 964 \$65 965 966 967 968 969	MAX DEPTH MEAN DEPTH MEAN DEPTH PT	THAW DATE THAW DATE JUL 17 1963 JUL 28 1964 *********** JUL 11 1966 JUL 10 1967 JUL 20 1969 JUL 20 1970 JUN 27 1971	
STATE/PROV: LAT: 68 41 LONG: 97 41 FREEZE/THAW TOTAL EARLY	NWT 0 N ARE 8 W HISTORY FREEZE DA SEP 20 1 SEP 15 1 SEP 21 1 OCT 8 1 OCT 8 1 OCT 5 1 SEP 21 1 OCT 5 1 SEP 21 1 OCT 5 1 SEP 21 1 SEP 21 1 SEP 21 1 SEP 21 1	A: 0.0 (SQ KM) NUMB TE DE \$62 963 964 965 965 966 966 967 968 969	MAX DEPTH MEAN DEPTH MEAN DEPTH PT	THAW DATE THAW DATE JUL 17 1963 JUL 28 1964 *********** JUL 11 1966 JUL 10 1967 JUL 20 1969 JUL 20 1970 JUL 20 1970 JUL 20 1971 ************ *************** JUN 27	
STATE/PROV: LAT: 68 4: LONG: 97 4: FREEZE/THAW	NWT 0 N ARE 8 W HISTORY FREEZE DA SEP 20 1 SEP 21 1 SEP 21 1 OCT 8 1 OCT 8 1 OCT 5 1 SEP 21 1 SEP 21 1 OCT 5 1 SEP 21 1 SEP 21 1 SEP 21 1 SEP 21 1	A: 0.0 (SQ KM) NUMB TE DE \$62 963 964 965 965 966 966 967 968 971 971	MAX DEPTH MEAN DEPTH MEAN DEPTH PT	THAW DATE JUL 17 1963 JUL 28 1964 A********* JUL 11 1966 JUL 10 1967 JUL 17 1968 JUL 20 1969 JUL 20 1970 JUL 20 1970 JUL 20 1971 A*********** ***********************	DEV
STATE/PROV: LAT: 68 49 LONG: 97 49 FREEZE/THAW TOTAL EARLY LATE MEAN	NWT 0 N ARE 8 W HISTORY FREEZE DA SEP 20 1 SEP 15 1 SEP 21 1 OCT 8 1 OCT 8 1 OCT 8 1 OCT 17 1 SEP 21 1 OCT 17 1 SEP 21 1	A: 0.0 (SQ KM) NUMB TE DE \$52 \$63 954 \$65 \$36 937 \$68 \$59 970 \$71 \$72	MAX DEPTH MEAN DEPTH MEAN DEPTH PT MEAN DEPT	: 0.0 (METERS) ES: 11 THAW DATE JUL 17 1963 JUL 28 1964 ************************************	•
TOTAL EARLY LATE MEAN NAME_DF_LAKI STATE/PROV:	NWT 0 N ARE 8 W HISTORY FREEZE DA SEP 20 1 SEP 15 1 SEP 21 1 OCT 8 1 OCT 5 1 SEP 21 1 SEP 30 1 OCT 17 1 SEP 21 1 SEP 21 1 SEP 21 1 SEP 21 1 SEP 27 E: GREAT SL NWT	A: 0.0 (SQ KM) NUMB TE DE \$62 963 964 \$65 937 968 937 968 959 970 971 972	MAX DEPTH MEAN DEPTH MEAN DEPTH PROPERTY OF ENTAIL PROPERTY OF ENTAIL PROPERTY OF THE PROPERTY	THAW DATE JUL 17 1963 JUL 28 1964 *********** JUL 11 1967 JUL 10 1967 JUL 20 1969 JUL 20 1970 JUL 20 1971 ********** ********* JUN 27 1971 ********** JUN 27 JUL 28 JUL 20 JUL 15	· · · · · · · · · · · · · · · · · · ·
TOTAL EARLY LATE MEAN NAME_DF_LAKI STATE/PROV:	NWT ARE 8 W AR	A: 0.0 (SQ KM) NUMB TE DE \$62 \$63 \$64 \$65 \$35 \$37 \$68 \$59 \$77 \$68 \$59 \$77 \$68 \$59 \$77 \$71 \$72	MAX DEPTH MEAN DEPTH MEAN DEPTH PT MEAN DEPT	: 0.0 (METERS) ES: 11 THAW DATE JUL 17 1963 JUL 28 1964 ************************************	· · · · · · · · · · · · · · · · · · ·
TOTAL EARLY LATE MEAN NAME OF LAK STATE/PROV: LATE METE/PROV: LATE LATE LATE AGO STATE/PROV: LATE LATE LATE LATE LATE LATE LATE LATE	NWT 0 N ARE 8 W HISTORY FREEZE DA SEP 20 1 SEP 15 1 SEP 21 1 OCT 8 1 OCT 5 1 SEP 21 1 OCT 5 1 SEP 21 1 OCT 17 1 SEP 21 1 SEP 21 1 SEP 21 1 SEP 21 1 SEP 27 2 E: GREAT SL NWT ARE	A: 0.0 (SQ KM) NUMB TE DE 552 963 964 965 957 968 957 968 957 970 971 971 972	MAX DEPTH MEAN DEPTH ER OF ENTAIL VIATION 7 -12 -6 -11 -8 -6 -3 -20 -6 -28 ID CODE: MAX DEPTH MEAN-DEPTH	: 0.0 (METERS) ES: 11 THAW DATE JUL 17 1963 JUL 28 1964 ************************************	· · · · · · · · · · · · · · · · · · ·
TOTAL EARLY LATE MEAN NAME OF LAK STATE/PROV: LATE METE/PROV: LATE LATE LATE AGO STATE/PROV: LATE LATE LATE LATE LATE LATE LATE LATE	NWT 0 N ARE 8 W HISTORY FREEZE DA SEP 20 1 SEP 15 1 SEP 21 1 OCT 8 1 OCT 5 1 SEP 21 1 OCT 5 1 SEP 21 1 OCT 17 1 SEP 21 1 SEP 21 1 SEP 21 1 SEP 21 1 SEP 27 2 E: GREAT SL NWT ARE	A: 0.0 (SQ KM) NUMB TE DE \$62 \$63 \$64 \$65 \$35 \$37 \$68 \$59 \$77 \$68 \$59 \$77 \$68 \$59 \$77 \$71 \$72	MAX DEPTH MEAN DEPTH ER OF ENTAI VIATION 7 -12 -6 -11 -8 -6 -3 -20 -6 -28 ID CODE: MAX DEPTH MEAN-DEPTH	: 0.0 (METERS) ES: 11 THAW DATE JUL 17 1963 JUL 28 1964 ************************************	•
TOTAL EARLY LATE MEAN NAME OF LAK STATE/PROV: LATE METE/PROV: LATE LATE LATE AGO STATE/PROV: LATE LATE LATE LATE LATE LATE LATE LATE	NWT 0 N ARE 8 W HISTORY FREEZE DA SEP 20 1 SEP 15 1 SEP 21 1 OCT 8 1 OCT 5 1 SEP 21 1 OCT 5 1 SEP 21 1 OCT 17 1 SEP 21 1 SEP 21 1 SEP 21 1 SEP 21 1 SEP 27 2 E: GREAT SL NWT ARE	A: 0.0 (SQ KM) NUMB TE DE \$62 \$63 \$64 \$65 \$37 \$68 \$59 \$77 \$68 \$59 \$70 \$71 \$7.2 Q AVE A: 0.0 (SQ KM) NUMB	MAX DEPTH MEAN DEPTH ER OF ENTAI VIATION 7 -12 -6 -11 -8 -6 -3 -20 -6 -28 ID CODE: MAX DEPTH MEAN-DEPTH	: 0.0 (METERS) ES: 11 THAW DATE JUL 17 1963 JUL 28 1964 ************************************	9. DEV

		FREEZE DATE DEC-14-1957 DEC 18 1958		THAW DATE 	DEVIATIO	
		DEC 9 1959	-4	* *****		
		DEC 7 1950 DEC 15 1961	-6 2	*********		
	TOTAL EARLY	6 DEC 7	· · · · · · · · · · · · · · · · · · ·	2 		
	LATE	DEC 18	7 **0	JUL 4	158	
	MEAN-	—DE C1-3	3•79	JUL _3		
15.	NAME OF LAKE		ID CODE:	310194		
		ON AREA:	0.0 MAX DEPTH: (SQ KM) MEAN DEP 1H	0.0		
	LONG: 101 44	¥ W		{-METERS }	· 	
	FREEZE/THAW	HISTORY	NUMBER OF ENTRIS	S: 9		
	•	•				
		FREEZE DATE	DEVIATION	THAW DATE	DEVIATI	
		SEP 14 1964	-12	JUL 20 1965 JUL6-1965 -		
		SEP 28 1966	2	*******	•	
		SEP 17 1967	-9	JUL 15 1968	3	
		OCT 1 1968 OCT 11 1969		JUL 19 1969 JUL 5 1970	7	
		SEP 26 1970		JUL 8 1971		
		OCT 4 1971	8	* *******		
	TOT !!	SEP 16 1972	-10	************		
	TOTAL EARLY	SEP 14		JUL 5		
	LATE	OCT 11		JUL 20		
	MEAN	SEP 25	8.97		-6.10	
16.	NAME OF LAKE	E: MOCULE	ID CJDE:	313214		
16.	NAME OF LAKE	E: MOCULE NWI N AREA:	ID CUDE: C.O MAX DEPTH: (SO KM) MEAN DEPTH	0.0 : 0.0		
16.	NAME DF LAKE STATEZPROV: LAT: 68 30	E: MOCULE NW! AREA: 3 W	ID CUDE: C.O MAX DEPTH: (SO KM) MEAN DEPTH	010216 0.0 : 0.0 (METERS)		
16.	NAME OF LAKE STATEZPROV: LAT: 68 30 LONG: 113 13	E: MOCULE NW! O N AREA: 3 W HISTORY	ID CUDE: C.O MAX DEPTH: (SO KM) MEAN DEPTH NUMBER OF ENTRIE	0.0 : 0.0 : METERS) S: 11		
,	NAME OF LAKE STATEZPROV: LAT: 68 30 LONG: 113 13	E: MOCULE NW! AREA: 3 W	ID CUDE: C.O MAX DEPTH: (SO KM) MEAN DEPTH NUMBER OF ENTRIE DEVIATION	010216 0.0 : 0.0 (METERS)		
,	NAME OF LAKE STATEZPROV: LAT: 68 30 LONG: 113 13	FREEZE DATE ###################################	ID CJDE: C.O MAX DEPTH: (SO KM) MEAN DEPTH NUMBER OF ENTRIE DEVIATION 9	J10214 0.0 : 0.0 (MCTERS) S: 11 THAW DATE JUN 22 1963 ************************************	DEVIATI	
,	NAME OF LAKE STATEZPROV: LAT: 68 30 LONG: 113 13	E: MOCULE NW') AREA: HISTORY FREEZE DATE ###################################	ID CUDE: C.O MAX DEPTH: (SO KM) MEAN DEPTH NUMBER OF ENTRIE DEVIATION 9	J10214 0.0 : 0.0 (METERS) S: 11 THAW DATE JUN 22 1963 ************************************	DEVIATION 7	
,	NAME OF LAKE STATEZPROV: LAT: 68 30 LONG: 113 13	FREEZE DATE ###################################	ID CUDE: C.O MAX DEPTH: (SO KM) MEAN DEPTH NUMBER OF ENTRIE DEVIATION 9 -16	J10214 0.0 : 0.6 (MCTERS) S: 11 THAW DATE JUN 22 1963 ************************************	DEVIATI -8 -7 -11 -13	
,	NAME OF LAKE STATEZPROV: LAT: 68 30 LONG: 113 13	FREEZE DATE ###################################	ID CJDE: C.O MAX DEPTH: (SO KM) MEAN DEPTH NUMBER OF ENTRIE DEVIATION 9 -16 10 -13	J10214 0.0 : 0.0 (METERS) S: 11 THAW DATE JUN 22 1963 ************************************	DEVIATION -8	
,	NAME OF LAKE STATEZPROV: LAT: 68 30 LONG: 113 13	FREEZE DATE ************* ********** *********	ID CUDE: C.O MAX DEPTH: (SO KM) MEAN DEPTH NUMBER OF ENTRIE DEVIATION 9 -16 10 -13 8	J10214 0.0 : 0.6 (MCTERS) S: 11 THAW DATE JUN 22 1963 ************************************	DEVIATI -8 -7 -11 -13	
,	NAME OF LAKE STATEZPROV: LAT: 68 30 LONG: 113 13	FREEZE DATE ###################################	ID CUDE: C.O MAX DEPTH: (SO KM) MEAN DEPTH NUMBER OF ENTRIE DEVIATION 9 -16 10 -13 8 15	J10214 J0.0 O.0 METERS) S: 11 THAW DATE JUN 22 1963 *********** JUL 7 1965 JUN 19 1966 JUL 13 1967 JUN 28 1968 JUL 11 1969 *********** JUN 21 1971	DEVIATI -8 -7 -11 13 -2	
,	NAME OF LAKE STATEZPROV: LAT: 68 30 LONG: 113 13	FREEZE DATE ************ *********** **********	ID CJDE: C.O MAX DEPTH: (SO KM) MEAN DEPTH NUMBER OF ENTRIE DEVIATION 9 -16 -13 -8 15	31321¢ 3.0 3.0 3.0 (METERS) 3: 11 THAW DATE JUN 22 1963 *********** JUL 7 1965 JUN 19 1966 JUL 13 1967 JUN 28 1968 JUL 11 1969 *********** JUN 21 1971 **********************************	DEVIATI -8 -7 -11 -13 -2 11	
,	NAME OF LAKE STATE PROVIDE TOTAL	FREEZE DATE ************* *********** ********	ID CJDE: C.O MAX DEPTH: (SO KM) MEAN DEPTH NUMBER OF ENTRIE DEVIATION 9 -16 -13 -8 15	31321¢ 3.0 : 0.0 : 0.0 (METERS) S: 11 THAW DATE JUN 22 1963 ********** ********* JUL 7 1965 JUN 19 1966 JUL 13 1967 JUN 28 1968 JUL 11 1969 *********** JUN 21 1971 *********** *********** ***********	DEVIATION	
,	NAME OF LAKE STATE PROVIDENT 68 30 LONG: 113 13 FREEZE/THAW	FRFEZE DATE ************************************	ID CJDE: C.O MAX DEPTH: (SO KM) MEAN DEPTH NUMBER OF ENTRIE DEVIATION 9 -16 -13 -8 15 -4 -18	31321¢ 3.0 3.0 3.0 (METERS) S: 11 THAW DATE JUN 22 1963 *********** JUL 7 1965 JUL 13 1966 JUL 13 1967 JUN 28 1968 JUL 11 1969 *********** ************* ********	DEVIATION	
,	NAME OF LAKE STATE/PROV: LAT: 68 30 LONG: 113 13 FREEZE/THAW TOTAL EARLY LATE	FREEZE DATE *********** ********** ******** ****	ID CJDE: C.O MAX DEPTH: (SO KM) MEAN DEPTH NUMBER OF ENTRIE DEVIATION 9 -16 -13 -8 15 -4 -18	J10214 J0.0 O.0 METERS) S: 11 THAW DATE JUN 22 1963 *********** JUL 7 1965 JUL 13 1967 JUN 19 1966 JUL 13 1967 JUN 28 1958 JUL 11 1969 ********** JUN 21 1971 *********** *********** JUN 19	DEVIATI -8 -7 -11 13 -2 11	
16.	NAME OF LAKE STATE/PROV: LAT: 68 30 LONG: 113 13 FREEZE/THAW TOTAL EARLY LATE	FREEZE DATE *********** ********** ******** ****	ID CJDE: C.O MAX DEPTH: (SO KM) MEAN DEPTH NUMBER OF ENTRIE DEVIATION 9 -16 -13 -8 -15 -18	31321¢ 3.0 . 0.0 . 0.0 (METERS) S: 11 THAW DATE JUN 22 1963 *********** JUL 7 1965 JUN 19 1966 JUL 13 1967 JUN 28 1968 JUL 11 1969 *********** JUN 28 1971 *********** JUN 28 1971 ************ JUN 28 1968 JUL 11 1969 ************ JUN 28 1968 JUL 13 1969	DEVIATI -8 -7 -11 -2 11 -9	
16.	NAME OF LAKE STATE/PROV: LAT: 68 30 LONG: 113 13 FREEZE/THAW TOTAL EARLY LATE	FREEZE DATE *********** ********** ******** ****	ID CJDE: C.O MAX DEPTH: (SO KM) MEAN DEPTH NUMBER OF ENTRIE DEVIATION 9 -16 -13 -8 -15 -18	31321¢ 3.0 . 0.0 . 0.0 (METERS) S: 11 THAW DATE JUN 22 1963 *********** JUL 7 1965 JUN 19 1966 JUL 13 1967 JUN 28 1968 JUL 11 1969 *********** JUN 28 1971 *********** JUN 28 1971 ************ JUN 28 1968 JUL 11 1969 ************ JUN 28 1968 JUL 13 1969	DEVIATION -8 -7 -11 -2 -11 -9	
16.	NAME OF LAKE STATE/PROV: LAT: 68 30 LONG: 113 13 FREEZE/THAW TOTAL EARLY LATE	FREEZE DATE *********** ********** ******** ****	ID CJDE: C.O MAX DEPTH: (SO KM) MEAN DEPTH NUMBER OF ENTRIE DEVIATION 9 -16 -13 -8 -15 -18	31321¢ 3.0 . 0.0 . 0.0 (METERS) S: 11 THAW DATE JUN 22 1963 *********** JUL 7 1965 JUN 19 1966 JUL 13 1967 JUN 28 1968 JUL 11 1969 *********** JUN 28 1971 *********** JUN 28 1971 ************ JUN 28 1968 JUL 11 1969 ************ JUN 28 1968 JUL 13 1969	DEVIATI -8 -7 -11 -13 -2 11 -9	
16.	NAME OF LAKE STATE/PROV: LAT: 68 30 LONG: 113 13 FREEZE/THAW TOTAL EARLY LATE	FREEZE DATE *********** ********** ******** ****	ID CJDE: C.O MAX DEPTH: (SO KM) MEAN DEPTH NUMBER OF ENTRIE DEVIATION 9 -16 -13 -8 -15 -18	31321¢ 3.0 . 0.0 . 0.0 (METERS) S: 11 THAW DATE JUN 22 1963 *********** JUL 7 1965 JUN 19 1966 JUL 13 1967 JUN 28 1968 JUL 11 1969 *********** JUN 28 1971 *********** JUN 28 1971 ************ JUN 28 1968 JUL 11 1969 ************ JUN 28 1968 JUL 13 1969	DEVIATI -8 -7 -11 -13 -2 11 -9	
16.	NAME OF LAKE STATE/PROV: LAT: 68 30 LONG: 113 13 FREEZE/THAW TOTAL EARLY LATE	FREEZE DATE *********** ********** ******** ****	ID CJDE: C.O MAX DEPTH: (SO KM) MEAN DEPTH NUMBER OF ENTRIE DEVIATION 9 -16 -13 -8 -15 -18	31321¢ 3.0 . 0.0 . 0.0 (METERS) S: 11 THAW DATE JUN 22 1963 *********** JUL 7 1965 JUN 19 1966 JUL 13 1967 JUN 28 1968 JUL 11 1969 *********** JUN 28 1971 *********** JUN 28 1971 ************ JUN 28 1968 JUL 11 1969 ************ JUN 28 1968 JUL 13 1969	DEVIATI -8 -7 -11 -13 -2 11 -9	
16.	NAME OF LAKE STATE/PROV: LAT: 68 30 LONG: 113 13 FREEZE/THAW TOTAL EARLY LATE	FREEZE DATE *********** ********** ******** ****	ID CJDE: C.O MAX DEPTH: (SO KM) MEAN DEPTH NUMBER OF ENTRIE DEVIATION 9 -16 -13 -8 -15 -18	31321¢ 3.0 . 0.0 . 0.0 (METERS) S: 11 THAW DATE JUN 22 1963 *********** JUL 7 1965 JUN 19 1966 JUL 13 1967 JUN 28 1968 JUL 11 1969 *********** JUN 28 1971 *********** JUN 28 1971 ************ JUN 28 1968 JUL 11 1969 ************ JUN 28 1968 JUL 13 1969	DEVIATI -8 -7 -11 -13 -2 11 -9	
16.	NAME OF LAKE STATE/PROV: LAT: 68 30 LONG: 113 13 FREEZE/THAW TOTAL EARLY LATE	FREEZE DATE *********** ********** ******** ****	ID CJDE: C.O MAX DEPTH: (SO KM) MEAN DEPTH NUMBER OF ENTRIE DEVIATION 9 -16 -13 -8 -15 -18	31321¢ 3.0 . 0.0 . 0.0 (METERS) S: 11 THAW DATE JUN 22 1963 *********** JUL 7 1965 JUN 19 1966 JUL 13 1967 JUN 28 1968 JUL 11 1969 *********** JUN 28 1971 *********** JUN 28 1971 ************ JUN 28 1968 JUL 11 1969 ************ JUN 28 1968 JUL 13 1969	DEVIATION -6 -11 -13 -2 11 -9	
,	NAME OF LAKE STATE/PROV: LAT: 68 30 LONG: 113 13 FREEZE/THAW TOTAL EARLY LATE	FREEZE DATE *********** ********** ******** ****	ID CJDE: C.O MAX DEPTH: (SO KM) MEAN DEPTH NUMBER OF ENTRIE DEVIATION 9 -16 10 -13 8 15 -18	31321¢ 3.0 . 0.0 . 0.0 (METERS) S: 11 THAW DATE JUN 22 1963 *********** JUL 7 1965 JUN 19 1966 JUL 13 1967 JUN 28 1968 JUL 11 1969 *********** JUN 28 1971 *********** JUN 28 1971 ************ JUN 28 1968 JUL 11 1969 ************ JUN 28 1968 JUL 13 1969	DEVIATION -6 -11 -13 -2 11 -9	
16.	NAME OF LAKE STATE/PROV: LAT: 68 30 LONG: 113 13 FREEZE/THAW TOTAL EARLY LATE	FREEZE DATE *********** ********** ******** ****	ID CJDE: C.O MAX DEPTH: (SO KM) MEAN DEPTH NUMBER OF ENTRIE DEVIATION 9 -16 -13 -8 -15 -18	31321¢ 3.0 . 0.0 . 0.0 (METERS) S: 11 THAW DATE JUN 22 1963 ************ JUL 7 1965 JUN 19 1966 JUL 13 1967 JUN 28 1968 JUL 11 1969 *********** JUN 28 1971 *********** JUN 28 1971 ************ JUN 28 1968 JUL 11 1969 ************ JUN 28 1968 JUL 13 1969	DEVIATI -8 -7 -11 -2 11 -9	

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19.	NAME OF LAKE STATE/PROV: LAT: 68 20	NWT	BARROW AREA:	0.0	ID CODE:)10254	
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19.	NAME OF LAKE STATE/PROV: LAT: 66 L LUNG: 118	NWT 5 N	· ·		MAX DEPTH:	2.0	
	FREEZE/THAW	HISTOR	Υ .	NUMBE	R OF ENTRIE	5: 14	
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	ME AN						
20 .	NAME OF LAKE			ED	ID CODE:	010275	
	STATE/PROV: LAT: 68 35 LONG: 111 6	N		REA:	0.0 MAX DEPTH: (SQ KM) MEAN DEPTH		
****	EREEZE/THAW-	ністо	RY-		NUMBER_OF_ENTR-IE	s:	·
21.	NAME OF LAKE			ED	ID CODE:	010308 T	·
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22•	NAME OF LAKE				io cone:	010324	
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			E DATE 91968		IATION		DATE - 1969	DEVIATIO
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23.	NAME OF LAKE	E: LONG			ID CODE:	010334		
	STATE/PROV: LAT: 62 28	NWT	AREA:	0.0	MAX DEPTH			
	LAT: 62 28 LONG: 114 2	7 W 		(SQ KM)	MEAN DEPT	H: 3.0		
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24 •	NAME OF LAKE				ID CODE:	020014		
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	FREEZE/THAW	HISTORY	,	NUMBER	R OF ENTRI			
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25 •	STATE/PROV:	AL B			*					
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		····			(ME T	ERS)				
	FREEZEZTHAW	HISTORY	Y	NUMBER (OF ENTRIES:	10				
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			DATE		TION	HAW-1	DATE	TOPVIATION		
		*************************************	* ** * * * * * * * * * * * * * * * * *	≮ k	TION MA	1AW-1	1963	DEVIATION -7 -10		
		****** ****** NOV 29	******* ****** 9 196:	< k 5 −1	MA MA	r 17	1965 1965	-15 -14		
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26.	EARLY LATE MEAN	**************************************	********* 9 195 9 195 7 195 7 196 9 197 197 197	-1 -2i -2i -3 -3 -3 -19 -19 -10 -10 -10 -10	AM AM AM AM UU UU UU UU AM AM	Y 17 Y 13 Y 21 Y 19 N 7 N 15 N 1 Y 13 Y 15 Y 27	1965 1965 1967 1968 1969 1970 1971 1972 1973	-10 -14 -6 -7 -8 13 -11 -19		
:6.	EARLY LATE MEAN NAME OF LAKE STATE/PROV:	**************************************	**************************************	11.53	AM AM AM AM AM UU UU UU UU AM AM AM	7 17 7 21 7 21 7 20 7 19 8 9 8 10 10 10 10 11 10 11 11 11 11 11 11 11 1	1965 1965 1967 1968 1969 1970 1971 1972 1973	-10 -14 -6 -7 -8 13 -11 -19		
?6•	EARLY LATE MEAN NAME OF LAKE STATE/PROV: LAT: 55 11	**************************************	**************************************	11.53	AM AM AM AM UU UU UU UU AM AM	7 17 7 21 7 20 9 7 1 20 1 20 9 7 1 20 1 20 1 20 1 20 1 20 1 20 1 20 1 20	1965 1965 1967 1968 1969 1970 1971 1972 1973	-10 -14 -6 -7 -8 13 -11 -19		
26.	EARLY LATE MEAN NAME OF LAKE STATE/PROV: LAT: 55 11	**************************************	**************************************	11.53	AM A	7 17 7 21 7 20 7 19 N 15 N 15 N 15 1 13 Y 1 27	1965 1965 1967 1968 1969 1970 1971 1972 1973	-10 -14 -6 -7 -8 13 -11 -19		
26 •	NAME OF LAKE STATE/PROV: LAT: 55 11 LONG: 118 53	**************************************	**************************************	11.53 11.53 11.53 III C.O. M/ NUMBER (MA MA MA MA MA MA MA JU JU JU MA MA MA MA D C005: 02C05 MA MA MA MA MA MA MA MA D C005: 02C05 MA MA MA MA D C005: 02C05 MA MA MA MA MA MA D C005: 02C05 MA MA MA MA MA MA MA MA MA D C005: 02C05 MA MA MA MA MA MA MA MA MA MA	7 17 7 21 7 20 7 19 8 7 19 8 7 19 8 7 15 8 10 10 10 10 10 10 10 10 10 10 10 10 10 1	1965 1965 1967 1968 1969 1970 1971 1972 1973	-16 -14 -6 -7 -8 -13 -11 -19 -5 -10.82		
26.	NAME OF LAKE STATE/PROV: LAT: 55 11 LONG: 118 53	**************************************	**************************************	11.53 C.O MA CSQ_KM) ME NUMBER DEVIA	AM AM AM AM AM AM A D A A A A A A A A A	17 17 17 12 17 12 19 10 10 11 10 11 10 11 11 11 11 11 11 11	1965 1965 1967 1968 1969 1970 1971 1972 1973	10.82 DEVIATION		
26 •	NAME OF LAKE STATE/PROV: LAT: 55 11 LONG: 118 53	******* NOV 20 NOV 30 NOV 30 NOV 30 H1STORY NOV 1	**************************************	11.53 11.53 11.53 III C.O MA CSQ KM) ME NUMBER (DEVIA 10	MA MA MA MA JU JU JU JU MA MA MA MA JU MA MA MA MA MA TIDN TI MA AP	7 17 7 21 7 20 7 19 8 7 19 8 7 19 8 7 10 10 10 11 11 11 11 11 11 11 11 11 11 1	1965 1965 1967 1968 1969 1970 1971 1972 1973	-16 -14 -6 -7 -8 13 -11 19 5 10.82		
26.	NAME OF LAKE STATE/PROV: LAT: 55 11 LONG: 118 53	**************************************	**************************************	11.53 11.53 II C.O MA CSQ_KM) DEVIA 10 10 11 DEVIA 10 11 11 DEVIA 11 DEVIA	MA MA MA MA MA JU JU JU MA MA MA JU MA MA D CODE: 02CD5 (MET OF ENTRIES: TION TI MA AP	17 17 12 17 12 10 10 10 10 10 10 10 10 10 10 10 10 10	1965 1965 1967 1968 1969 1970 1971 1972 1973	DEVIATION C C		
26.	NAME OF LAKE STATE/PROV: LAT: 55 11 LONG: 118 53	**************************************	**************************************	11.53 C.O MA (SQ_KM) ME NUMBER (DEVIA 10 10 10 11 11 11 11 11 11 1	MA MA MA MA MA JU JU JU JU JU MA MA MA MA MA MA MA TION TI MA AP AP MA MA	17 17 12 12 12 12 12 12 13 14 14 15 17 17 17 17 18 18 18 18 18 18 18 18 18 18 18 18 18	1965 1965 1967 1968 1969 1970 1972 1973 1973 1958 1958 1958 1960 1961	DEVIATION C C - 4 - 5 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2		
26 •	NAME OF LAKE STATE/PROV: LAT: 55 11 LONG: 118 53	******* NOV 20 NOV 30 NOV 30 NOV 30 H1STORY NOV 10	**************************************	11.53 11.53 11.53 III C.O M/ (SQ_KM) ME NUMBER (DEVIA 10.55 10.55 10.55 10.55 10.55 10.55 10.55 10.55 10.55 10.55 10.55 10.55 10.55 10.55 10.55 10.55 10.55 10.55 10.55	MA MA MA MA JU JU JU JU MA MA JU MA MA MA JU MA	7 17 17 17 17 17 17 17 17 17 17 17 17 17 1	1965 1965 1966 1968 1969 1970 1971 1972 1973	DEVIATION C C - 4 - 5 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2		
26 •	NAME OF LAKE STATE/PROV: LAT: 55 11 LONG: 118 53	**************************************	**************************************	11.53 11.53 III C.O M/ (SQ_KM) ME NUMBER (DEVIA 10 12 10 11 11 11 11 11 11 11	MA M	17 17 12 12 12 12 12 12 13 14 14 14 15 17 17 17 17 17 17 17 17 17 17 17 17 17	1965 19667 19669 1970 1971 1972 1973 1957 1958 1958 1960 1961 1963 1964	DEVIATION C C		
26.	NAME OF LAKE STATE/PROV: LAT: 55 11 LONG: 118 53	**************************************	**************************************	11.53 11.53 11.53 11.53 11.53 11.53 11.53	MA M	131209971511 1013157	1965 1965 19667 1968 1969 1970 1971 1972 1973 1959 1959 1959 1960 1961 1963	DEVIATION C -16 -7 -8 -13 -11 -19 -5		

	FREEZE D		DEVIATION	THAW DA		DEVIATIO
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	OCT 23	1969	-1 5	APR 29	1970	-5
	DCT 24		-3 -14	MAY 3		6
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TOTAL EARLY	16 OCT 23			15 APR 25		
LATE	NOV_17			NAY_1 0		
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NAME OF LAK	F: LAC LA	BICHE	10 C00E:	020064		
STATE/PROV:	ALB					
LAT: 54 4 — LONG: 111-5			G.O MAX DEPTH Q_KM) — MEAN-DEPT			
				(METERS)		-
FREEZEZTHAW	HISTORY		NUMBER OF ENTRI	ES: 28		
			•			
	FREEZE D		DEVIATION -11	THAW DA ******		DEVIATIO
	****	***		APR 30	1946	-13
	NJV 13 NOV 23	1946	-4	MAY 17		5
	0E V DM	1548	5 13	MAY 12	1949	-1
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	NOV 29	1953	12		1954	12 3
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	NOV 12	1956	~ 5	MAY 15	1957	2
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	NJV 11	1959	- 6	MAY 12	1960	-1
	NOV_12	.1550 1962	5 1 0	MAY12. MAY 15	1961 . 1963	
	NOV 27 NOV 18		10	MAY 10	1964	2 - 3
	NOV 19-	1-956		MAY-14		
	NOV 14 NOV 6	1965 1965	-3 -11	11 YAM 02 YAM	1965 1967	-2 7
		1367		MAY 4	1968	<u>-</u> ς
		1938	-1	MAY 5	1969	-8
	NOV 13 NOV 20		<u>-</u>	MAY 11 May 7	1970 1971	-2 -6
	******	***		MAY 21	1972	٤
TOTAL	NOV-22 25	1972	5	м аү- -31 27	1.9.1.3	
EARLY	OCT 28			APR 30	_	
LATE MEAN	NOV 36		7.68	MAY 31 MAY 13	-	6.61
ME AIX	MOA 11					
NAME OF LAK	ET LESSER	SLAVE	in con:	023374		
STATE/PROV: LAT: 55 2	IN AF	REA:	0.0 MAX DEPTH	: 0.0		
LONG: 114 5	9 W	(5	0.0 MAX DEPTH SQ KM) MEAN DEPT	H: 0.0	•	
			`.	(METERS)		
FREEZE/THAW	HISTORY		NUMBER OF ENTRI			
			,	· · · · · · · · · · · · · · · · · · ·		
	FREEZE C	ATE	DEVIATION	THAW DA	TE	DEVIATIO
	*****	*******	DEVIATION 7	MAY 18	1953	- 2
	DEC 4 NGV_13		7 -1 4	MAY 25 MAY 20	1954	5 0
	DEC 13	1955	16	MAY 21	1955	· 1
	DEC 3	1956	6	MAY 23	1957	3
				•		

MAY 14 1960 -6
MAY 22 1961 2
MAY 25 1962 5
MAY 16 1963 -4
MAY 17 1964 -3
MAY 29 1965 9
MAY_2319663
MAY 27 1967 7
MAY 12 1958 -8
MAY 17 1959 -3
MAY 15 1970 -5
MAY 15 19715
MAY 23 1972 3

19
MAY 12
MAY 29
MAY 20 4-59

NAME OF LAKE: LAKE MINNEWANKA STATE/PROV: ALB LAT: 51 11 N AREA: 0. LONG: 115 34 W (SQ ID C00E: 020084 29.

MAX DEPTH: 0.0 MEAN DEPTH: 0.0 (METERS) 0.0 (SQ KM)

FREEZE/THAW HISTORY NUMBER OF ENTRIES: 32

	FREEZE DATE	DEVIATION	THAW DATE	DEVIATIO
	水布水灰水水 水水水 克斯米		MAY 14 1940	-3
	DEC 27 1540	3	MAY 5 1941	
	DEC 21 1941	-3	MAY 10 1942	-7
	JAN 1 1943	8	MAY 27 1943	10
	JAN 25 1944	32	MAY 5 1944	-12
	DEC 31 1944	7	MAY 30 1945	13
	DEC_17_ 1945		APR 29 1946	-18
	DEC 12 1946	-12	MAY 10 1947	-7
	JAN 14 1948	21	MAY 17 1948	Ç
	DEC 13 1948			- -
	DEC 17 1949	- 7	MAY 26 1950	9
	DEC 2 1950	~2 2	MAY 12 1951	~ 5
	DEC 14 1951	-10	MAY 8 1952	. ~ ō
	JAN 6 1953	13	MAY 16 1953	-1
	JAN71954	14	MAY 26 1954	9
	DEC 29 1554	5	MAY 27 1955	10
	NOV 25 1955	-29	MAY 26 1955	ç
	JAN 17 1937	24	MAY 21 1957	· · · · · · · · · · · · · · · · · · ·
	DEC 7 1958	-17	MAY 16 1959	- 1
	DEC 27 1959	- <u>3</u>	MAY 7 1960	-10
	DEC 20 1960	- <u>-</u> <u>-</u>	MAY 23 1961	6
	DEC 8 1961	-15	MAY 22 1962	5
	********		MAY 17 1963	Ċ
	DEC 15 1963	-9	MAY 21 1964-	Ž,
	DEC 16 1954	– ś	MAY 24 1965	7
	- DEC 25 1955		MAY 7 1965	
	JAN 25 1967	32	MAY 17 1968	ĨĠ
	DEC 15 1968	<u>- </u>	MAY 11 1959	6
	DEC_29_1969	·	JUN 7 1970	21
	DEC 23 1970	-1	MAY 14 1971	
	DEC_201971	– ā .	MAY 21 1972	ă.
	DEC 21 1972	-3	MAY 17 1973	ř
TOTAL	30		32	
EARLY	NOV SS		APR-29	
LATE	JAN 25		JUN 7	
MEAN	DEC 24	14.34	MAY 17	8 • 60

3U-4	NAME DE LAKE: State/Prov:	ALB ·				
	LAT: 51 6	N AREA:	0.0 (SQ KM)	MAX DEPTH:	0.0	
					(METERS)	
	FREEZE/Thaw H	ISTORY	NUMB!	R OF ENTRIES	: 7	
		FREEZE DATE		VIATION	THAW DATE	DEVIATIO
		NOV 12 1966 NOV 24 1967		10	MAY 20 1967 MAY 3 1968	c
		NOV 24 1967 ************ ******	· · · · · · · · · · · · · · · · · · ·		APR 18 1969 MAY. 6 1970	-15 3
		NOV 11 1570		- 3	*********** APR 29 1972	-4
		NOV 15 1972		1	* * * * * * * * * * * * * * *	·
· ·	EARLY	5 8 - 8 			APR 18	
	LATE Mean	NOV 24 NOV 14	5.	• 48	MAY 20 MAY 3	10.38
31 •	STATE/PROV:	SAS				
	LAT: 56 19 LONG: 107 57	N AREA: ₩	313.00 (SQ KM)	HTGEC MASK	5.5 (METERS)	•
	FREEZE/THAW H			•		
32.	NAME OF LAKE: STATE/PROV:			ID CODE: 0	30041	
	LAT: 54 55 _LONG: 102 55_	N AREA:	114.00 _(SQ KM)	MAX DEPTH: MEAN DEPTH:	32.5 7.8 (METERS)	
	FREEZEZŤHAW	ISTORY	NUMB		<u></u>	. –
33.	NAME OF LAKE: STATE/PROV:	SAS		ID CODE: 0		
· · · · · · · · · · · · · · · · · · ·	LAT: 55 7 LONG: 102 47	N AREA:	(SQ KM)	MEAN DEPTH:	13.8 (METERS)	•••• • • • • • • • • • • • • • • • • •
	FREEZE/THAW H	ISTORY	IGMUN	ER OF ENTRIES	: 0	
34.	NAME OF LAKE:	PEL IC AN		ID CODE: 0	30061	
	STATE/PROV: LAT: 55 9 LDNG: 103 0	""SAS" AREA:	100.30 (SQ_KM)	MAX DEPTH: MEAN_DEP.TH:	32.0	
. 		ISTORY	NUMB(ER-OF-ENTR-LES		
35•	NAME OF LAKE: STATE/PROV: LAT: 55 5C	SAS		ID CODE: 0	•	
	LONG: 105 0		(SQ KM)	MEAN DEPTH:		
•	FREEZEZTHAW H	ISTORY	NUMBI	ER OF ENTRIES	: 0	

3 •	NAME OF LAKE: WILDNEST		ip cm:: 030101	
	CTATE/DDDNY	•		
	LAT: 55 0 N AREA: LONG: 102 20 W	46.40 (SQ KM)	MEAN DEPTH: 6.8	
			(METERS)	
	FREEZE/THAW HISTORY	NUMBE	R OF ENTRIES: 0	
	<u> </u>			
7.	NAME OF LAKE: ANNABEL -STATE/PROV:SAS		ID CODE: 033151	
	LAT: 54 50 N AREA: LONG: 102 13 W	12.20	MAX DEPTH: 4.9 MEAN DEPTH: 1.5	
	LUNG: 102 13 W	(SU KM)	(METERS)	
	FREEZE/THAW HISTORY	NUMBE	R OF ENTRIES: 0	
8.	NAME OF LAKE: JOHNSON STATE/PROV: SAS			
	LAT: 54 51 N AREA: LONG: 102 17 W	7.14 (SQ KM)	MAX DEPTH:3.8 MEAN DEPTH: 1.8 (METERS)	
	FREEZE/THAW HISTORY	NUMBE	R OF ENTRIES: 0	
9•	NAME OF LAKE: TYRELL STATE/PROV:——SAS		ID CODE: 030191	
	LAT: 54 53 N AREA:	6.11 (SQ KM)	MAX DEPTH: 7.0 MEAN DEPTH: 3.0	
	LONG: 102 8 W	(SQ NO)	(METERS)	-
	FREEZE/THAW HISTORY	NUMBE	R OF ENTRIES: 0	
0.	NAME OF LAKE: CONTACT		10 COOE: 037231	
~ •	CTATE/DDOV* SAS			
	LAT: 56 13 N AREA: LUNG: 103 43 W	(SQ KM)	MAX DEPTH: 24.7 MEAN DEPTH: 6.9 (METERS)	
	FREEZE/THAW HISTORY	NUMBE	R OF ENTRIES: 0	
1 •	NAME OF LAKE: WOLLASTON		ID C00f: 030351	
	STATE/PROV: SAS LAT: 58 15 N AREA: LONG: 103 20 W	2062.00 (SQ KM)	MAX DEPTH: 97.0 MEAN DEPTH: 20.6 (METERS)	
	FREEZE/THAW HISTORY	NUMBI	ER OF ENTRIES: 0	
2.	NAME OF LAKE: AMISK STATE/PROV: SAS		10-C002: 030361	
	LAT: 54 33 N AREA:	321.00	MAX DEPTH: 40.0 MEAN DEPTH: 13.2	
	10x10 102 15 W	ISO KNI	MEAN DEPTH: 1.3.2	

43.	NAME OF LAKT STATE/PROV:	SA	S								
	LAT: 56 LONG: 108 50	W C	A	REA:	552.00 (\$0 KM)	MAX DEPTH	:24; H: 13; METE	7		·	
	FREEZE/THAW	HIST	DRY		NUMBE	R OF ENTRI					
44.		E: LI	TTLE	PETE	R PON	1D C0DE:	030381				
	STATE/PROV: LAT: 55 4: LONG: 108 3!	7 N		REA:		MAX DEPTH	H: 5,	1			
	FREEZE/THAW	HIST	DRY		NUMBE	R OF ENTRI	S:				
						:=====================================	<u> </u>				
¢5.	NAME OF LAKE STATE/PROV:		5								
	LAT: 55 27 LONG: 107 50		Al	REA:	(\$0 KM)>	MAX DEPTE	27. H: 8. (METE	5	_ _ _		*
	FREEZE/THAW	ніѕто	RY		NUMBE	R OF ENTRIS	s:	0			
46	STATE/PROV:	SAS	`			ID CODE:	030414		· · ·		
	LAT: 50 23 LONG: 102 35	N	Al	REA:	0.0 (SQ KM)	MEAN DEP TH		C		·	
	FREEZE/THAW	HISTO	RY		NUMBE	R OF ENTRIS	s: 1	7			
				DA TE 1955	DEV	IATION 0			ATE	DEV I	
		ОСТ ОСТ	24 25	1955 1955		1 4 · · · · · · · · · · · · · · · · · ·	APR APR	-14- 25	1957 -1955 1959	·	-10 1
		VOV VOV	11 9 2	1959 1960 1951		<u>4</u> 2 ~5	APR	18	1960 1961		-1 -6
		_700 700 700 V	.13	_1.962_ 1.963		_6 12	APR	16	1962 1963 ****		-2 -8
			15.	1964 1965	<u></u>	9 13	APR	30	1965 		6 51-
		NOV NOV	6 3	1966 1967		-1 -4	APR	25 25	1967 1968		2
		DCT DCT	27	1968		11	MAY	12	1969 1970	- ,	-2 18
		NO.V NO.V OC.T	4	1970 1971 1972		12	AP R	29 29 29	1971 1972 1973	_	د 5-26
	TOTAL EARLY	0CT						15 - 29			· <u>~</u> C
	LATE MEAN	VON.	²⁰ –		8.	85	MAY	1 2 2 4		9.	71
· · · · · · - · · ·						·					

	STATE/PROV:	SAS			I DC05 E :	*********				
	LAT: 55 51	IN .	AREA:	433.00	MAX DEPT	⊦: 21.	0			
	LONG: 108 27	r w	•	(SQ KM)	MEAN DEP	TH: 9.				
· · · · · · · · · · · · · · · · · · ·	FREEZE/THAW	HISTORY	(NUMBE	ER OF ENTR	IES:	5			
			DATE	DE	VIATION	Td	AW D	ATE 1969		DEVIATIO
		NOV 13	1 1 5 6 9		-1	APR	9	1970		-23
		NOV 18 NOV 11 NOV 12	1571		-3 -2	事 李 xi 本 专员	****	1971 ***** ****		_12
	TOTAL EARLY	NOV 11			· · · · · · · · · · · · · · · · · · ·	APR	· 9	-		
·	LATE MEAN	NOV 18		2	. 74	MAY MAY	14 2-			1650
								· 		
48.	STATE/PROV:	SAS		—	ID CODE:					
	LAT: 57 21 LONG: 106 50	, N) W		1155.00 (SQ KM)			9			
	FREEZEZTHAW	HISTORY	,	NUMBE	PR OF FNTR					
				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	<u> </u>		·			
			DATE		VÎATI ÔN			ATE 1970		DEVIATIO
		- NOV-2 5	1970		5 10	MAY	~28~	1971		
		NOV 6	1972	_	-14	300		1972		1
	TOTAL				- 1 4	MAY		1973		-2
	TOTAL EARLY	3 NOV 6	1			. MAY	\$ 28			- £
	EARLY LATE MEAN	3 0 V 0 N 0 V 20 0 V 0 N		10.	.34	YAM . NUC NUC	\$ 28 8 2	-		4:06
49.	EARLY LATE	NOV 6 NOV 30 NOV 20	A RONGE	10.	.34	- MAY JUN JUN 030442	28 8 2	-		-
49.	EARLY LATE MEAN NAME OF LAKE STATE/PROV: LAT: 55 8	NOV 30 NOV 20 NOV 20	A RONGE	10. 1178.0C (SQ_KM)	IO CODE:	. MAY JUN JUN 030442 F: 38. TH: 12.	28 8 2	-		-
49.	NAME OF LAKE STATE/PROV: LAT: 55 8 LONG: 105 20	NOV 6 NOV 30 NOV 20 : LAC L SAS N HISTORY	A RONGE AREA: 1	10. 1178.0C (SQ_KM)	ID CODE: MAX DEPT MEAN DEP	. MAY JUN JUN 030442 F: 38. H: 12. (METE	28 82 2 7 7 RS)	ATE		4 - C6
49.	NAME OF LAKE STATE/PROV: LAT: 55 8 LONG: 105 20	SAS LAC L SAS NO HISTORY FREEZE ******	A_RONGE AREA: 1 DATE ******	10. 1178.0C (SQ_KM)	ID CODE: MAX DEPT MEAN DEP R OF ENTR	. MAY JUN JUN 030442 H: 38. TH: 12. (METE	28 82 7 7 RS)	ATE -1967 1968		4 = 0 6
49.	NAME OF LAKE STATE/PROV: LAT: 55 8 LONG: 105 20	SAS NOV 20 LAC L SAS N W HISTORY FREEZE ***** DEC 5 DEC 15	A RONGE AREA: 1 DATE ****** 1967 1953 1959	10. 1178.0C (SQ_KM)	ID CODE: MAX DEPT MEAN DEP R OF ENTR	- MAY JUN JUN JUN JUN AY MAY MAY	28 8 27 7 7 7 8 5 7 2 7 2 7 2 7 2 7	ATE -1967 1968 1969 -1970	······································	0EVIATIO 12 2 -20
49.	NAME OF LAKE STATE/PROV: LAT: 55 8 LONG: 105 20	SAS NOV 20 NOV 20 SAS NOV 20 FREEZE ******* DEC 5 DEC 18 NOV 28	DATE ****** 1967 1953 1959 1971	10. 1178.0C (SQ_KM) NUMBE	ID CODE: MAX DEPT MEAN DEP R OF ENTR	- MAY JUN O30442 F: 38. TH: 12. (METE JUN MAY MAY MAY MAY MAY MAY	28 8.2 27 RS)	ATE -1967 1968 1969 1970 1970	······································	DEVIATIO 12 -20 -1
49.	EARLY LATE MEAN NAME OF LAKE STATE/PROV: LAT: 55 8 LONG: 105 20 FREEZE/THAW	SAS NOV 20 LAC L SAS N W HISTORY FREEZE ***** DEC 2 DEC 15 NOV 30 NOV 28 NOV 7	DATE ****** 1967 1963 1969 1970 1971	10. 1178.0C (SQ_KM) NUMBE	ID CODE: MAX DEPT MEAN DEP R OF ENTR	- MAY JUN JUN JUN JUN JUN 12. TH: 12. TH. JUN MAY MAY MAY MAY MAY	28 28 22 27 27 27 27 22 22 22 22 27	ATE -1967 1968 1969 1970	······································	DEVIATIO 12 2 -20 -1
49.	EARLY LATE MEAN NAME OF LAKE STATE/PROV: LAT: 55 8 LONG: 105 20 FREEZE/THAW	SAS NOV 20 LAC L SAS N W HISTORY FREEZE ***** DEC 2 DEC 15 NOV 30 NOV 28 NOV 7	DATE ****** 1967 1963 1967 1971 1972	10. 1178.0C (SQ_KM) NUMBE	ID CODE: MAX DEPT MEAN DEP R OF ENTR	- MAY JUN O30442 F: 38. TH: 12. (METE JUN MAY MAY MAY MAY MAY MAY	28 28 2 2 2 2 2 3 2 2 2 2 2 2 2 2 2 2 2	ATE -1967 1968 1969 1970 1970	······································	DEVIATIO 12 -20 -1

LAT: 54 7 N AREA: 0.0 MAX DEPTH: 0.0 CONTROL CONTRO		STATE/PROV:					ID_C005:03			
FREEZE DATE DEVIATION THAW DATE DEVIATION TH				AF	REA:				<u>.</u>	
FREEZE DATE DEVIATION THAW DATE DEVIATION OCT 20 1999 -1 APR 29 1999 -1 APR 20 1970 -2 OCT 29 1970 B APR 13 1971 -2 OCT 25 1971 4 ***********************************		20,101 100 2,	-			COG KM7				
######################################		FREEZE/THAW	HISTO	RY	***************************************	NUMBE	ER OF ENTRIES:	5		
OCT 20 1969			FREE	ZE (DATE	DE	VIATION			 DEVIATI
OCT 29 1970 8							-1			
TOTAL 4 EARLY OCT 8 EARLY OCT 29 MEAN OCT 21 TOTAL 4 EARLY OCT 8 LATE OCT 29 MEAN OCT 21 TOTAL 5 LATE OCT 29 MEAN OCT 21 TOTAL 6 APR 3 APR 29 MEAN OCT 21 TOTAL 6 APR 15 APR 15 IO.71 BI. NAME OF LAKE: WASCANA STATE/PROV: SAS LAT: 50 26 N AREA: 0.C MAX DEPTH: 0.0 LONG: 104 46 W FREEZE DATE *********** FREEZE/THAW HISTORY NUMBER OF ENTRIES: 33 FREEZE/THAW HISTORY NUMBER OF ENTRIES: 33 FREEZE/THAW HISTORY NUMBER OF ENTRIES: 33 FREEZE/THAW HISTORY NUMBER OF ENTRIES: 33 FREEZE/THAW HISTORY NUMBER OF ENTRIES: 33 FREEZE/THAW HISTORY NUMBER OF ENTRIES: 33 FREEZE/THAW HISTORY NUMBER OF ENTRIES: 33 FREEZE/THAW HISTORY NUMBER OF ENTRIES: 33 FREEZE/THAW HISTORY NUMBER OF ENTRIES: 33 FREEZE/THAW HISTORY NUMBER OF ENTRIES: 33 FREEZE/THAW HISTORY NUMBER OF ENTRIES: 33 FREEZE/THAW HISTORY NUMBER OF ENTRIES: 33 FREEZE/THAW HISTORY NUMBER OF ENTRIES: 33 FREEZE/THAW HISTORY NUMBER OF ENTRIES: 33 FREEZE/THAW HISTORY NUMBER OF ENTRIES: 33 FREEZE/THAW HISTORY NUMBER OF ENTRIES: 33 FREEZE/THAW HISTORY NUMBER OF ENTRIES: 10.0 MEXAMETER OF SOME AND TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOTAL TOT		·-··	OCT	29	1970		8	APR 13	1971	
EARLY OCT 8						-				
LATE OCT 29 APR 25 10.71				8						
51. NAME OF LAKE: WASCANA STATE/PROV: SAS LAT: SO 26 N AREA: 0.0 MAX DEPTH: 0.0 LONG: 104 46 W (SQ KM) MEAN JEPIH: 0.0 (METERS) FREEZE/THAW HISTORY NUMBER OF ENTRIES: 33 FREEZE/THAW HISTORY NUMBER OF ENTRIES: 33 FREEZE/THAW DATE NUMBER OF ENTRIES: 33 FREEZE/TAW NUMBER OF ENTRIES: 33 FREE	•	LATE	OCT	29				APR 29		
STATE/PROV: SAS LAT: 50 26 N AREA: 0.0 MAX DEPTH: 0.0 LONG: 104 4C W (SO KM) MEAN JEPTH: 0.0 (METERS) FREEZE/THAW HISTORY NUMBER OF ENTRIES: 33 FREEZE/TAK NUMBER OF ENTRIES: 33 F	•	MEAN	- OCT	21		7 .	91	-APR-1:5		 - 10 -71
STATE/PROV: SAS LAT: 50 26 N AREA: 0.0 MAX DEPTH: 0.0 LONG: 104 4C W (SO KM) MEAN JEPTH: 0.0 (METERS) FREEZE/THAW HISTORY NUMBER OF ENTRIES: 33 FREEZE/TAK NUMBER OF ENTRIES: 33 F	F1 -	NAME OF LAKE	• MAC				10 60051 00		- 	
LONG: 104 40 W		STATE/PROV:	SAS					J40\$		
######################################				AF	REA:					
FREEZE DATE ************ NOV 13 15:00 NOV 18 18:00 NOV						1 3d RHI				
#************* NOV 13 1540		FREEZE/THAN	нізто	ŖY		NUMBE	ER OF ENTRIES:	33		
#************* NOV 13 1540							,,,			
#************* NOV 13 1540		- ***	EDEE	7F (ATE		JI A TI ON	THAM D	\TE	DENTÁTI
NOV 18 1541 NOV 6 1542 10 APR 3 1943 NOV 13 1545 NOV 15 1545 NOV 16 1546 NOV 17 1546 NOV 17 1546 NOV 17 1553 NOV 17 1553 NOV 17 1553 NOV 18 1555 NOV 18 1555 NOV 18 1555 NOV 18 1555 NOV 19 1555 NOV			****	** **	***	OL 1	VIRITON	APR 15		
NOV 6 1942							-3			 - 9
NOV 13 1945			NOV	6	1942	the second second second	10			-11
NOV 15 1946						-				
NOV 10 1946 -5 ###################################			NOV	15	1946	· · · · · · · · · · · · · · · · · · ·	1			
**************************************										5
######################################			- ***	** *=	****			"APR-19		
NOV 7 1952										
NOV 28 1956								APR 26	1953	
NOV 2 1955										
**************************************			NOV	2	1955		-14	APR 19	1956	
NOV 17 1958 1 APR 7 1959 -7 NOV 13 1959 -3 APR 15 1960 1 NOV 28 1960 12 APR 15 1961 1 ***********************************				-			21			
NOV 28			VOV	17	1958					
************* APR 14 1962 DEC 11 1962 DEC 11 1962 APR 5 1963 PO NOV 21 1963 NOV 21 1963 APR 22 1964 APR 26 1965 APR 26 1966 APR 26 1966 APR 26 1966 APR 27 1965 APR 28 1966 APR 28 1966 APR 28 1967 APR 3 1968 -11 DEC 10 1969 NOV 10 1969 NOV 10 1969 NOV 10 1969 NOV 2 1971 NOV 2 1971 NOV 2 1971 TOTAL APR 18 1972 APR 18 1973 APR 19 1972 APR 18 1973 APR 19 1972 APR 19 1972 APR 29			NÚV.	13						
NOV 21 1963 5 APR 22 1964 8 NOV 21 1964 5 APR 26 1965 12 NOV 12 1965 -4 APR 6 1966 -8 NOV 8 1965 -8 APR 20 1967 6 NOV 14 1967 -2 APR 3 1968 -11 DEC 10 1968 - 24 APR 10 1969 -4 NOV 10 1969 -6 APR 18 1970 4 NOV 10 1969 -70 APR 18 1971 0 NOV 2 1971 -14 APR 14 1972 0 NOV 12 1972 -4 MAR 15 1973 -30 TOTAL 27 EARLY NOV 2 LATE DEC 11 APR 29			***	** **	***					
NOV 21 1954 5 APR 26 1965 12 NOV 12 1965 -4 APR 6 1966 -8 NOV 8 1965 -8 APR 20 1967 6 NOV 14 1967 -2 APR 3 1968 -11 DEC 10 1968 24 APR 10 1969 -4 NOV 10 1969 -6 APR 16 1970 4 NOV 2 1971 -14 APR 14 1971 0 NOV 2 1971 -14 APR 14 1972 0 NOV 12 1972 -4 MAR 15 1973 -30 TOTAL 27 EARLY NOV 2 LATE DEC 11 APR 29										
NOV 8 1965 -8 APR 20 1967 6 NOV 14 1967 -2 APR 3 1968 -11 DEC 10 1968 -4 APR 10 1969 -4 NOV 10 1969 -6 APR 18 1970 4 NOV 2 1971 -14 APR 14 1972 0 NOV 12 1972 -4 MAR 15 1973 -30 TOTAL NOV 2 MAR 15 LATE DEC 11 APR 29			NOV :	21			5			
NOV 14 1967 -2 APR 3 1968 -11 DEC 10 1968 - 24 APR 10 1969 -4 NOV 10 1969 -6 APR 18 1970 4 NOV 6 1.570 -10 APR 14 1971 C NOV 2 1971 -14 APR 14 1972 0 NOV 12 1972 -4 MAR 15 1973 -30 TOTAL 27 EARLY NOV 2 LATE DEC 11 APR 29										
DEC 10 1968 - 24 APR 10 1969 -4 NÜV 10 1969 -6 APR 16 1970 4 NÜV 5-1.570 -10 APR 14 1971 0 NÜV 2 1971 -14 APR 14 1972 0 NÜV 12 1972 -4 MAR 15 1973 -30 TOTAL 27 EARLY NÜV 2 LATE DEC 11 APR 29			NOV	14	1967		- 2	APR 3		
NOV 6 1970 -10 APR 14 1971 C NOV 2 1971 -14 APR 14 1972 O NOV 12 1972 -4 MAR 15 1973 -30 TOTAL 25 EARLY NOV 2 MAR 15 LATE DEC 11 APR 29						•				
NOV 2 1971 -14 APR 14 1972 0 NOV 12 1972 -4 MAR 15 1973 -30 TOTAL 25 EARLY NOV 2 MAR 15 LATE DEC 11 APR 29			_NOV_	6	1.570_		·10			
TOTAL 27 EARLY NOV 2 MAR 15 LATE DEC 11 APR 29									1972	O
LATE DEC 11 APR 29			27-					25	1313	
								MAR 15		
						10.	62			9.61
The state of the s										

LAT: 59 34 N AREA: 47.70 MAX DEPTH: 70.0 CONTROL 108 29 W (SU KM) MEAN DEPTH: 37.55 FREEZE/THAW HISTORY NUMBER OF ENTRIES: 23 FREEZE/THAW HISTORY NUMBER OF ENTRIES: 26 FREEZE/THAW HISTORY NUMBER OF ENTRIES: 17 FREEZE/THAW HISTORY NUMBE		STATE/PROV:			⊃ ⊏ Λ •	47-70	MAY DEDT	F5 70-0		
FREEZE/THAW HISTORY FREEZE DATE				- A	TEA+		MEAN DEP	TH: 33.5		
								(METERS)		
NOV 24 1551		FREEZEZTHAW	ністо	RY		NUMBE	R OF ENTR	IES: 23		
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	NAME OF L STATE/PRO FREEZE/TO NAME OF L STATE/PRO LAT: 59 LONG: 108 FREEZE/TO	7 20 7 20 7 20 HAW LAKE 10 8 15 FAW	HISTO	S A DRY NOE S AI ORY **** **** 1629	REA: DATE 1 561 **** 1 564 **** 1 567 1 563	C.C (SQ KM) NUMBE DEV	MAX DEPTIMEAN DE	13:00 (METER 17:00 (METER 16:5: 0) (METER 16:5: 0) (METER 16:5: 9) (METER 16:5	w D 29 13 110 22 -7 112	ATE 1962 1963 1965 1965 1965 1967	16 -3 -3 -6
	TOTAL TOTAL TOTAL EARL LATE TOTAL EARL LATE LA	7 20 7 20 2 20 HAW LAKE 5 10 8 15 HAW	FREE NW HISTO	S A DRY NOE S A S S S S S S S S S S S S S S S S S	REA: DATE 1 561 **** 1 564 **** 1 567 1 563	C.C (SQ KM) NUMBE DEV	MAX DEPTIMEAN DE	15.00 (METER 17.00 (METER 16S: 0) 0 0 (METER 16S: 9) 0 0 0 (METER 16S: 9) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	w D 29 13 10 22 7 12 9	ATE 1962- 1963- 1965- 1965- 1969- 1970	16 -3 -3 -6 -12
	NAME OF L STATE/PRI LAT: 5' LONG: 10' REEZE/TI NAME OF L STATE/PRI LAT: 5' LONG: 10' FREEZE/TI FREEZE/TI	7 20 7 20 2 20 HAW LAKE 5 10 8 15 HAW	FREE NOV WOOD OCT OCT	S A DRY NOE S A S S S S S S S S S S S S S S S S S	REA: DATE 1 561 **** 1 564 **** 1 567 1 563	C.C (SQ KM) NUMBE DEV	MAX DEPTIMEAN DE	13.00 IH: 17.00 (METER IES: 0) 03.0555 IH: 0.00	W D 29 13 10 22 7 1 12 9 1 29	ATE 1952- 1964 1965 1965 1967 1969	16 -3 -3 -6 -12
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56.	TOTAL TOTAL TOTAL EARL LATE TOTAL EARL LATE LA	7 20 7 20 2 20 HAW LAKE 5 10 8 15 HAW	FREE NW HISTO	S A DRY NOE S A S S S S S S S S S S S S S S S S S	REA: DATE 1 561 **** 1 564 **** 1 567 1 563	C.C (SQ KM) NUMBE DEV	MAX DEPTIMEAN DE	1215.00 IH: 17.00 [METER] IES: 0 030555 : 0.00 [METER] MAY	W D 29 13 10 22 7 1 12 9 1 29	ATE 1962- 1963- 1965- 1965- 1969- 1970	16 -3 -3 -6 -12 -1

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	LONG: 101	21 W		(SQ KM)	MEAN DEPT	:62.6 4: 0.0 (MEȚERS)	
59•	NAME OF LA STATE/PROV LAT: 54	/: MAN			ID COUE:		F MA MINISTER CO
						- 	
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	EARLY	SEP 2				JUN-14	
-	TOTAL	OCT	9 1972		11	**************************************	
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		VOV	1 1969	}	12	JÜN 15 197	o
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		OCT 2	3 1962	2	3	JUN 22 196	3 -1
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		OCT	8 1959	-	-12	JUN 19 196	ه - ه
		OCT 1		7	-1 17	JUL 2 1956 	
	FREEZEZTHA		ZE DATE		IR OF ENTRI	THAW DATE	DEVIATIO
	LÜNG: 94	4 W	•	(SQ KM)	MEAN DEPT	(METERS)	
	STATE/PROV	45 N		0.0	MAX DEPTH	: 0.0	
58.	NAME OF LA	KE: FARN	SWOR TH		ID CODE:	040014	<u>.</u>
	MEAN	NOV :		7	58	MAY 17	0.00
	LATE	DEC 1	8			MAY 28	
	TOTAL	1-1				MAY 9	
		NOV 2			-2 -1	* ##******** MAY 25 197	
			****	<u> </u>		<u>MAY</u> 9 197.	i - 8
_		****	*******			MAY 9 196	9
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	,	DEC	18 196	3	18 -1	MAY 11 1964 MAY 16 195	
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		DEC	SE DATE	5	/IATION	THAW DATE	
							DEWIATIC
	FREEZE/THA	W HISTOR	₹ Y	NUMBE	R OF ENTRI	is: 13	
					and the second s	(METERS)	
						4 4 7 TE DC 1	
	LAT: 54 LUNG: 199	55 N 43 W	AREA:	0+0 (SC KM)	MAX DEPTH TREET WASH		

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	FREEZE DATE	DEVIATION	THAW DATE MAY 28 1956	DEVIAT
	******		MAY 19 1957	 5
	*****		MAY 16 1953 	-8 2
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MEAN	******			
		to cose:	240043	
STATE/PROV:	MAN SN ADEA: 51	S.AO MAY DEPT	4.5	
LONG: 100	Ž W 	8.40 MAX DEPTH Q KM) MEAN DEP	าค่ :	
			(METERS)	
FREEZEZTHAW	HISTORY	NUMBER OF ENTRI	ES: 8	•
	EC5-35 04%5	BENTATION	#11.5 / BATE	DE * * *
	FREEZE DATE NOV 5 1948	DEATWITON	THAW DATE	DEVIAT
	NOV 9 1950	-8 -4	APR 30 1951	5
	NOV11951		APR-26 1952	ĩ
	NOV 23 1952	10	APR 29 1953	4
	NOV 22 1953	i 0 9	MAY 13 1954	18
	NEW>71-CEA			·
	NOV 6 1955 NOV 10 1972	- 7	. 女 李本本本本本本本本本本	_
	NOV 10 1972	-3	MAR 23 1973	-33
TOTAL	6	•	5	
EARLY	NOV 1 NOV 27		MAR 23	
MFAN	NDV 13	9.08	MAY. 13 APR 25	15.62
			23	
	u i CTAe V		(METERS)	
TREEZETTIAN	1131541	NUMBER OF ENTRI		
	FREEZE DATE	DEVIATION	THAW DATE	DEVIAT
	NOV _ 7 _ 1956	_a		C C
		-2	MAY 10 1958	- 4
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	NOV 9 1960		MAY 17 1950	. 3
		2 ⋅	MAY 23 1961	8
	NOV 13 1961		MAY 23 1961 *********	. 3 . 3
	NOV 13 1961 ***************	2 ⋅	MAY 23 1961 ************ MAY 14 1963	
	NOV 13 1961 ***********************************	-2 .	MAY 23 1961 ************ MAY 14 1963 MAY 6 1964	8 7 9 0 - 8
	NOV 13 1961 ***************** *****************	2 ⋅	MAY 23 1961 ***********************************	870 OBA
	NOV 13 1961 ***********************************	-2 .	MAY 23 1961 ************************************	839 - 0827
	NOV 13 1961 ***********************************	-2 .	MAY 23 1961 ************************************	839 C8 -27 12
	NOV 13 1961 ************************************	2 11	MAY 23 1961 ************************************	839 C8-27 121
	NOV 13 1961 ************************************	1 2	MAY 23 1961 ************************************	8 3 6 -8 -2 7 121 -15
	NOV 13 1961 ************************************	2 11	MAY 23 1961 ************************************	839 C8-27 12-1
	NOV 13 1961 ***********************************	1 2 11	MAY 23 1961 ************************************	839
	NOV 13 1961 ************ *********** **********	1 2 2 3 3	MAY 23 1961 **********************************	839
TOTAL	NOV 13 1961 *************** *********** *********	11	MAY 23 1961 **********************************	839
EARLY	NOV 13 1961 ****************** ************ ******	11	MAY 23 1961 **********************************	839
EARLY	NOV 13 1961 ************* *********** **********	11	MAY 23 1961 ############ MAY 14 1963 MAY 14 1965 MAY 12 1965 MAY 21 1966 MAY 26 1967 MAY 13 1968 APR 29 1969 MAY 17 1970 MAY 7 1970 MAY 7 1971 ##################################	839 C8272 12537 -1537
EARLY	NOV 13 1961 ****************** ************ ******	11	MAY 23 1961 **********************************	839 C827 -72 -133
EARLY	NOV 13 1961 ************* *********** **********	11	MAY 23 1961 ############ MAY 14 1963 MAY 14 1965 MAY 12 1965 MAY 21 1966 MAY 26 1967 MAY 13 1968 APR 29 1969 MAY 17 1970 MAY 7 1970 MAY 7 1971 ##################################	839 C8272 12537 -1537
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	MAN Be n	AREA:24	530.60	MAX DEPT	r: 0.	0		
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		*******			YAM MAY		1947 1948	
		*****			MAY	16	1949	1
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· · · · · · · · · · · · · · · · · · ·		*************	-				1952	-10
		***			YAM May	7 20	1953 1954	+8 5
		*****			MAY	<u>1</u>	1955	
	DEC 3			5 ·	M A Y M A Y		1955 1957	-3 -2
	NOV 29			1	MAY	12	1958	-3
	NOV 27 			-1 -8	YAM		1959 1960	-2 -8
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	NOV 20			-8 6	MAY		1962 1963	
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	NOV 27			-1 -3	MAY MAY		1965 1965	2
•	NOV 16			ıž,	MAY		1965	
	— ĐEC4 DEC 9			6	MAY		1968	7
	NOV 19		-	li . -9	MAY MAY		1969 1970 .	-3 7
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	NOV 25 DEC 1		-	-3 3	YAM YAM		1972 1973	15 -3
TOTAL	17					27	•	
EARLY LATE	NOV 16				MAY JUN			
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				T				
NAME OF LAK	E: HEMIN	I G	*	ID CODE:	040093			
STATE/PROV:	MAN				040093			
STATE/PROV: LAT: 54 5	MAN 3 N	AREA:	2.59	MAX DEPT	.: 5.3			·
STATE/PROV:	MAN 3 N	AREA:	2.59		·: 5.5			
STATE/PROV: LAT: 54 5	MAN 3 N 7 W	AREA:	2+59 .SQ KM) .	MAX DEPT	: 5.8 H: 3.1 (METER	(8)		
STATE/PROV: LAT: 54 5 LONG: 101	MAN 3 N 7_W HISTORY FREEZE	AREA:	2.59 SQ KM)	MAX DEPTE MEAN DEPT	: 5.8 H: 3.1 (METE)	(S)		DEVIAT
STATE/PROV: LAT: 54 5 LONG: 101	MAN 3 N 7 W HISTORY FREEZE *****	AREA:	2.59 SQ KM)	MAX DEPTHEN MEAN DEPTHEN TO THE TOTAL TOTA	: 5.8 H: 3.1 (METE)	(S)	ATE 1943 1946	14
STATE/PROV: LAT: 54 5 LONG: 101	MAN 3 N 7 W	DATE ***** 1546	2.59 SQ KM) NUMBER	MAX DEPTHEN MEAN DEPTHEN TO THE TOTAL TOTA	: 5.3 n: 3.1 (ME TER ES: 21 THA MAY MAY MAY	W D 27 1 22	1945 1946 1947 -	14 -12 9
STATE/PROV: LAT: 54 5 LONG: 101	MAN 3 N 7 W	DATE ***** 1546 *****	2.59 SQ KM) NUMBER	MAX DEPTHEAN DEPTHEAN DEPTHEAN	: 5.3 : 3.1 : (ME TER : 21 : TH/ : MAY : MAY : MAY : MAY	W D 27 1 22	1945 1946 1947 -1948	14 -12 9
STATE/PROV: LAT: 54 5 LONG: 101	MAN 3 N 7 W HISTORY FREEZE ***** ***** NOV 1 ****** NOV 4	DATE ***** 1546 ***** 1943 *****	2.59 SQ KM) NUMBER	MAX DEPTH MEAN DEPTH COF-ENTRI	THAMAY MAY MAY MAY MAY MAY MAY MAY MAY MAY	(S) 27 1 22 15 4	1945 1946 1947 -1948 1949 1950	14 -12 9
STATE/PROV: LAT: 54 5 LONG: 101	MAN 3 N 7 W FREEZE ***** ***** NOV 1 ****** NOV 4 ****** ******	DATE ***** 1546 ***** 1943 *****	2.59 SQ KM) NUMBER	MAX DEPTH MEAN DEPTH COF-ENTRI	THAMAY MAY MAY MAY MAY MAY MAY MAY MAY MAY	W D 27 22 16 16 12	1945 1946 1947 -1948 1949 1950 1951	14 -12 9 2 -9 3 -1
STATE/PROV: LAT: 54 5 LONG: 101	MAN 3 N 7 W HISTORY FREEZE ****** NOV 1 ***** NOV 0 ****** **** OCT 16	DATE ***** **** **** **** **** **** ****	2.59 SQ KM) NUMBER	MAX DEPTHEAN DEPTHEAN DEPTHEAN DEPTHEAN ATION	THAMAY MAY MAY MAY MAY MAY MAY MAY MAY MAY	27 22 15 16 12 27	1945 1946 1947 -1948 1949 1950	14 -12 9
STATE/PROV: LAT: 54 5 LONG: 101	MAN 3 N 7 W HISTORY FREEZE ****** ****** NOV 1 ***** ***** ***** ****** ***** *****	DATE ***** 1546 ***** 1948 **** 1948 **** 1953	2.59 SQ KM) NUMBER	MAX DEPTHEMEAN DEPTHEMEAN DEPTHEMEN	THAMAY MAY MAY MAY MAY MAY MAY MAY MAY MAY	27 22 15 16 127 20	1945 1946 1947 	14 -12 9
STATE/PROV: LAT: 54 5 LONG: 101	MAN 3 N 7 W FREEZE **** NOV 1 **** NOV ** **** **** **** **** **** **** ****	DATE ***** **** **** **** **** **** ****	2.59 SQ KM) NUMBER	MAX DEPTHEAN DEPTHEAN DEPTHEAN DEPTHEAN ATION	THAMAY MAY MAY MAY MAY MAY MAY MAY MAY MAY	W 27 12 16 127 20 4	1945 1946 1947 	14 -122 9
STATE/PROV: LAT: 54 5 LONG: 101	MAN 3 N 7 W H1STORY FREE**** NOV** ***** NOV** ***** **** **** *	DATE ***** ***** **** **** **** **** ****	2.59 SQ KM) NUMBER	MAX DEPTHEAN DEPTHEAN DEPTHEAN DEPTHEAN ATION	THAMAY MAY MAY MAY MAY MAY MAY MAY MAY MAY	27 22 15 16 12 27 20 21	1945 1946 1947 	14 -12 9
STATE/PROV: LAT: 54 5 LONG: 101	MAN 3 N 7 W H1STORY FREE**** NOV** ***** NOV** ***** **** **** *	DATE ****** 1 5 4 5 4 5 4 5 4 5 4 5 4 5 4 5 4 5 4 5	2.59 SQ KM) NUMBER	MAX DEPTHEN DE	TH/ MAY	W 7 21 22 15 4 16 12 7 2 2 1 1 7	1945 1946 1947 1949 1950 1951 1952 1953 1954 1955 1955 1955	14 -12 9 -2 3 -1 -16 -7 -7 -9 -8 6
STATE/PROV: LAT: 54 5 LONG: 101	MAN 3 N 7 W FREEZE **** **** **** **** **** **** ****	AREA: DATE ****** 1 ****** 1 ***** ****** 1 ***** ***** 1 ***** ***** 1 **** ***** 1 **** ***** ***** 1 **** ***** ***** ***** ***** ***** ****	2.59 SQ KM) NUMBER	MAX DEPTHEAN DEPTHEAN DEPTHEAN DEPTHEAN ATION	TH: 3.5 TH: 3.5 (ME TER MAY MAY MAY MAY MAY MAY MAY MA	27 225 1627 204 2107 214	1945 1946 1947 	14 -12 9
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	` EARLY	OCT 16		<u> </u>	APR 27	
	MEAN	NOV 1		9•68	MAY 27 MAY 13	8 • 25
64 .	NAME OF LAK	E: LYNN		ID CODE:		
	-STATE/PROV: -LAT: 56 5	MAN 2 N	AREA:	2.59 MAX DEPTH	: 0.0	
	LONG: 101	4 W		(SO KM) MEAN DEPT	H: 0.0 (METERS)	
	FREEZE/THAW	HISTORY	·	NUMBER OF ENTRI		
		FREE 2 B	DATE	DEVIATION	THAW DATE	DEVIATIO
		*****	*****		MAY 10 1969 -	DEVIATIO
			1969 1970	-6 12	MAY 24 1970 MAY 13 1971	3 -3
	-0-4	OCT 28	1971 1972	-11	- MAY 13, 1971 MAY 15, 1972 *********	- Ĩ
		OCT 13			MAY 10	
	LATE MEAN	NOV 5		8.90	MAY 24 MAY 16	5 • 24
					MAT 10	
55 •	NAME OF LAKE STATE/PROV:			ID CODE:		
	LAT: 56 52	2 N	AREA:	27.70 MAX DEPTH	: 0.0	
	LONG: 101 4	3 W		(SQ KM) MEAN DEPT		
	FREEZE/THAW	HISTORY		NUMBER OF ENTRI	ES: 5	
	FREEZE/THAW	FREEZE ***	DATE *****	DEVIATION	THAW DATE MAY 9 1969	-1c
	FREEZE/Thaw	FREEZE ****** OCT 19	DATE ***** 1969	DEVIATION -6 11	THAW DATE MAY 9 1959 MAY 30 1970 MAY 16 1971	-10 -11 -3
		FREEZE ****** OCT 17 NOV 5 OCT 28	DATE ***** 1969 1970 1971	DEVIATION -6	THAW DATE MAY 9 1959 MAY 30 1970	-10 -11
	TOTAL	FREEZE ****** OCT 19 NOV 5 OCT 28 OCT 17	CATE ***** 1969 1970 1971 1972	DEVIATION -6 11 3	THAW DATE MAY 9 1959 MAY 30 1970 MAY 16 1971 MAY 20 1972 ************	-10 -11 -3
	TOTAL EARLY LATE	FREEZE ****** OCT 19 NOV 5 OCT 28 OCT 17 4 OCT 17 NOV 5	DATE ****** 1969 1970 1971 1972	DEVIATION -6 11 3 -8	THAW DATE MAY 9 1959 MAY 30 1970 MAY 16 1971 MAY 20 1972 ********* MAY 9 MAY 30	-10 -11 -3 1
	TOTAL EARLY	FREEZE ****** OCT 19 NOV 5 OCT 28 OCT 17 4	DATE ****** 1969 1970 1971 1972	DEVIATION -6 11 3	THAW DATE MAY 9 1959 MAY 30 1970 MAY 16 1971 MAY 20 1972 ************** MAY 9	-10 -11 -3
06.	TOTAL EARLY LATE MEAN	FREEZE ****** OCT 19 NOV 5 OCT 28 OCT 17 4 OCT 17 NOV 5 OCT 25	DATE ****** 1969 1970 1971 1972	DEVIATION -6 11 3 -8	THAW DATE MAY 9 1959 MAY 30 1970 MAY 16 1971 MAY 20 1972 ********** MAY 9 MAY 9 MAY 30 MAY 19	-10 -11 -3 1
06.	TOTAL EARLY LATE MEAN NAME OF LAKE STATE/PROV: LAT: 50 S	FREEZE ****** OCT 19 NOV 5 OCT 28 OCT 17 A OCT 17 NOV 5 OCT 25	DATE ****** 1969 1970 1971 1972 MANITOB	7.58 A ID CODE:	THAW DATE MAY 9 1959 MAY 30 1970 MAY 16 1971 MAY 20 1972 ********** MAY 9 MAY 30 MAY 19	-11 -3 1
36 •	TOTAL EARLY LATE MEAN NAME OF LAKE STATE/PROV:	FREEZE ****** OCT 19 NOV 5 OCT 28 OCT 17 A OCT 17 NOV 5 OCT 25	DATE ****** 1969 1970 1971 1972 MANITOB	DEVIATION -6 11 3 -8 7.58	THAW DATE MAY 9 1959 MAY 30 1970 MAY 16 1971 MAY 20 1972 ********* MAY 9 MAY 30 MAY 19	-10 -11 -3 1
06.	TOTAL EARLY LATE MEAN NAME OF LAKE STATE/PROV: LAT: 50 S	FREEZE ****** OCT 19 OCT 28 OCT 17 OCT 17 NOV 5 OCT 25	DATE ***** 1969 1970 1971 1972 MANITOB AREA: 4	7.58 A ID CODE:	THAW DATE MAY 9 1959 MAY 30 1970 MAY 16 1971 MAY 20 1972 ********* MAY 9 MAY 30 MAY 19	-10 -11 -3 1
	TOTAL EARLY LATE MEAN NAME OF LAKE STATE/PROV: LAT: 50 S LONG: 98 30	FREEZE ****** OCT 19 OCT 28 OCT 17 OCT 17 NOV 5 OCT 25	DATE ****** 1970 1971 1972 MANITOB AREA: 4	DEVIATION -6 11 3 -8 7.58 7.58 A ID CODE: 71.0.00 MAX DEPTH: (SQ KM) MEAN DEP THE	THAW DATE MAY 9 1959 MAY 30 1970 MAY 16 1971 MAY 20 1972 ********* MAY 9 MAY 30 MAY 19	7.60
	TOTAL EARLY LATE MEAN NAME OF LAKE STATE/PROV: LAT: 50 S LONG: 98 30	FREEZE ***** OCT 19 NOV 5 OCT 17 OCT 17 OCT 17 OCT 25 :: LAKE MAN D W HISTORY FREEZE NOV 30	DATE 1956	DEVIATION -6 11 3 -8 7.58 A ID CODE: 71.0.00 MAX DEPTH: (SQ KM) MEAN DEPTH NUMBER OF ENTRIE	THAW DATE MAY 9 1959 MAY 30 1970 MAY 16 1971 MAY 20 1972 ********** A MAY 9 MAY 30 MAY 19	7.60 DEVIATIO
	TOTAL EARLY LATE MEAN NAME OF LAKE STATE/PROV: LAT: 50 S LONG: 98 30 FREEZE/THAW	FREEZE ****** OCT 19 OCT 28 OCT 17 OCT 17 NOV 5 OCT 25 LAKE MAN N N HISTORY EREEZE NOV 30 NOV 20 NOV 27	DATE 1956 1970 1971 1972 MANITOB AREA: 1956 1957	DEVIATION -6 11 3 -8 7.58 7.58 A ID CODE: 71.0.00 MAX DEPTH: (SQ KM) MEAN DEPTH NUMBER OF ENTRIE	THAW DATE MAY 9 1959 MAY 30 1970 MAY 16 1971 MAY 20 1972 ********* MAY 9 MAY 30 MAY 19 TO40123	7.60
06.	TOTAL EARLY LATE MEAN NAME OF LAKE STATE/PROV: LAT: 50 9 LONG: 98 30 FREEZE/THAW	FREEZE ***** OCT 19 OCT 28 OCT 17 OCT 17 OCT 25 OCT 25 ****** OCT 28 OCT 27 OC	DATE ***** 1969 1971 1972 MANITOB AREA: A DATE 1956 1957 1958	DEVIATION -6 11 3 -8 7.58 A ID CODE: 71.0.00 MAX DEPTH: (SQ KM) MEAN DEPTH NUMBER OF ENTRIE	THAW DATE MAY 9 1959 MAY 30 1970 MAY 16 1971 MAY 20 1972 ********* A MAY 9 MAY 30 MAY 19 TO40123	7.60 DEVIATIO
56.	TOTAL EARLY LATE MEAN NAME OF LAKE STATE/PROV: LAT: 50 9 LONG: 98 30 FREEZE/THAW	FREEZE ***** OCT 19 NOV 29 NOV 30 NOV 29 NOV 29 NOV 29	DATE 1956 DATE 1956 1957 DATE 1956 1957	DEVIATION -6 11 3 -8 7.58 A ID CODE: TIC. CO MAX DEPTH: (SQ KM) MEAN DEPTH: NUMBER OF ENTRIE DEVIATION 1 0 -2	THAW DATE MAY 9 1959 MAY 30 1970 MAY 16 1971 MAY 20 1972 ********* A MAY 9 MAY 30 MAY 19 TOA0123 TOA	7.60 DEVIATIO -1 -2 -2
6.	TOTAL EARLY LATE MEAN NAME OF LAKE STATE/PROV: LAT: 50 S LONG: 98 30 FREEZE/THAW TOTAL EARLY LATE	FREEZE ***** OCT 19 OCT 28 OCT 17 OCT 17 NOV 5 OCT 25 ****** OCT 28 OCT 27 NOV 5 NOV 29 NOV 27 NOV 30	DATE 1956 DATE 1956 1957 DATE 1956 1957	DEVIATION -6 11 3 -8 7.58 A ID CODE: 71.0.00 MAX DEPTH: (SQ KM) MEAN DEPTH NUMBER OF ENTRIE	THAW DATE MAY 9 1959 MAY 30 1970 MAY 16 1971 MAY 20 1972 ********* MAY 9 MAY 30 MAY 19 TO40123 TO4012	7.60 DEVIATIO
36.	TOTAL EARLY LATE MEAN NAME OF LAKE STATE/PROV: LAT: 50 S LONG: 98 30 FREEZE/THAW TOTAL EARLY LATE	FREEZE ***** OCT 19 OCT 28 OCT 17 OCT 17 NOV 5 OCT 25 ****** OCT 28 OCT 27 NOV 5 NOV 29 NOV 27 NOV 30	DATE 1956 DATE 1956 1957 DATE 1956 1957	DEVIATION -6 11 3 -8 7.58 A ID CODE: TIC. CO MAX DEPTH: (SQ KM) MEAN DEPTH: NUMBER OF ENTRIE DEVIATION 1 0 -2	THAW DATE MAY 9 1959 MAY 30 1970 MAY 16 1971 MAY 20 1972 ********* A MAY 9 MAY 30 MAY 19 TOA0123 TOA	7.60 DEVIATIO -1 -2 -2
	TOTAL EARLY LATE MEAN NAME OF LAKE STATE/PROV: LAT: 50 S LONG: 98 30 FREEZE/THAW TOTAL EARLY LATE	FREEZE ***** OCT 19 OCT 28 OCT 17 OCT 17 NOV 5 OCT 25 ****** OCT 28 OCT 27 NOV 5 NOV 29 NOV 27 NOV 30	DATE 1956 DATE 1956 1957 DATE 1956 1957	DEVIATION -6 11 3 -8 7.58 A ID CODE: TIC. CO MAX DEPTH: (SQ KM) MEAN DEPTH: NUMBER OF ENTRIE DEVIATION 1 0 -2	THAW DATE MAY 9 1959 MAY 30 1970 MAY 16 1971 MAY 20 1972 ********* A MAY 9 MAY 30 MAY 19 TOA0123 TOA	7.60 DEVIATIO -1 -2 -2

	STATE/PROV: LAT: 53 59	1AM n :		EA:	0.0	MAX DEPTH	0.0		
	<u>LUNG: 97 50</u>				(SQ KM)	MEAN DEPTH			
								·	
	FREEZE/THAW	HISTO	DRY		NUMBE	ER OF ENTRIE	:\$: 8		
			EZE D		DE	VIATION	THAW DA		DEVIATI
		NOV	7	1957		4	****	***	-
		NCV OCT		1558 1959		11 -21	MAY 18 ******	1959 ****	4
		NOV	4	1960		i	*****		
			-12 -****			9		1971 1972	-6 -1
	TOTAL	007	28	1972		-6	****	***	
	EARLY	OCT	13				MAY E		
	LATE MEAN	. <u>ИОУ</u> . - <u>ИОУ</u> .			10.	.77	MAY 18 - MAY 14 -		3.77
68.	NAME OF LAKE	: LAH	KE WA	нтор	ANAH	ID CODE:	040144		·-·
	LAT: 50 1	N		EA:	C • O	MAX DEPTH			
	LONG: 100 19	, ,			(SQ KM)	MEAN DEP 1	1: 0.0 (METERS)		_
	EREEZE/Thaw	⊌ f¢Tr	י מר		NITIME	ED OF ENTUIS			
			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,						
		FOFE	ZE D		DE)	VIATION	THAW DA		DEVIATI
, ,		***	****	***			E YAN	1951	C
		NOV	13 18	1961 1962		-5 3		1962 1963	-4 -2
		NCV_	-22	1963.	· ·	4	APR 29	1969	-4 2
		NO V		1964 1965		-1 -3	MAY 3	1965 1966	0
		DECNOV		1966 1967		-10 14		1967 1968	-4
		NOV	15	1963		-3	APR 25	1969	-8.
	TOTAL	NOV 9	16	1969		0	MAY 8	1970	5
	EARL Y	_NOV_					APR 25		
	LATE MEAN	DEC			6.	. 29	MAY 14 May 3		5.16
69 •	NAME OF LAKE STATE/PROV:	: CLE		TER		ID CODE:	04 01 52		***
	_LAT: 5A 2		AR	E.A.:	290.00 (SQ KM)	MAX_DEPTH: MEAN DEPTH			
	LONG: 101 1	. ₩			, or Mil	MCAN DIF R	(METERS)		
	FREEZE/THAW	ніят)RY		NUMBE	ER OF ENTHIS	S: 17		
								 .	
			ZE_D		DE	MOITAIN			. DEVIATI
		DEC	27	1955 1957		6 2	MAY 15	1957 1958	- 10
		-∨©и - ∨ои		19 53 1959		-4	 	**** 1960	
		NOV	25	1,560		0	MAY 29	1951	-5
		NOV DEC		1961 1962		0		1962 1963	3 -1
		DEC.	3	1963	<u> </u>	8	MAY 19	1964	-6
		NOV		1964 1965		- 2 -5		1965 1966	0 3
			- 1-7			- š			i

		FREEZE DATE	DEVIATION	THAW DATE	DEVIATIO
		NOV261 967			
		NOV 29 1968 NOV 20 1969		MAY 12 196	
		NOV 28 1970		JUN 5 197 MAY 19 197	
		NOV 25 1971	Ō	MAY 22 197	
		NOV 19 1972		JUN 1 197	
	TOTAL	17		15	
	EARLY	NOV 13 DEC5		MAY 12	
	MEAN	NOV 25	5.65	5 MAY 25	6 • 69
70 •	NAME OF LAKE STATE/PROV:	GRACE	ID CODE:	04,01,64	- C - C
	LAT: 53 50	ON ARFA:	0.0 MAX DEPTH:	0 . C	
<u>-</u>	_LONG: 101 10	D -W	(SO KM) MEAN DEPTH		
				(METERS)	•
	FREEZE/THAW	HISTORY	NUMBER OF ENTRIE	s	
	, MEGEL / THE		HONDER OF ENTRIES	J. 24	
		FREEZE DATE		THAW DATE	DEVIATIO
		タネタ ヤビネ マネカタ 京都 20			
		**********		MAY 20 196 MAY 2 199	

	•	************		MAY 12 195	-
		******		MAY 21 195	
		*******		APR 29 195	
				MAY 22 195	10
		******		MAY 12 195	
	. *	OCT 11 1959	- 24 ·	MAY 12 196	60
		NOV 7 1960	3	MAY-15 196	31: 31:
		NOV 7 1961	3	MAY 14 196	2 2
		NOV 5 1962 NOV 11 1963		MAY 9 196	53 · - 3
		NOV 13 1964	9	MAY 8 196 MAY 11 196	•
		NDV 6 1965		MAY 18 196	
		OCT 29 1966	-6	MAY 25 196	
		OCT 27 1967	-8	MAY 10 196	
	*** * * * * *	<u> </u>		APR-26 196	- :
		NOV 19 1969 NOV 8 1970		MAY 23 197	
		OCT 29 1971		- MAY 7 197 MAY 9 197	
		OCT 17 1972	-18	MAY 15 197	
	T.O.T.A.L	15		23	•
	EARLY	OCT 11		APR 26	
	LATE Mean	NOV 20	1.0	MAY 25	
	ME MIN		10.61	MAY 12	7-67
71.	NAME OF LAKE STATEZPROV:	MAN	ID CODE: 0	04 31 72	
	LAT: 54 55	N AREA:	134.80 MAX DEPTH: (SQ KM) MEAN DEPTH:	25.3	
	LONG: 98 38	. M	(SQ KM) MEAN DEPTH:	5.8 (METERS)	
	FREEZE/THAW	HISTORY	NUMBER OF ENTRIES		•
·		error i Tarine. L		·	
		FREEZE DATE	DEVILITION	 TILANI DATE	
		NOV 16 1956	DEVIATION 1	MAY 30 195	DEVIATIO
	 	NOV-17-1957-		MAY-18195	
	•	NOV 19 1958	. 4	JUN 1 195	9 8
		NOV 4 1959	<u> =1 1</u>	MAY 24 196	ń ń
		NOV 9 1960 NOV 9 1961	- 5	MAY 27 196	3
		NOV 16 _1962.	<u>-6</u>	MAY 26 196 MAY 19 196	
		NOV 21 1963		MAY 19 196 MAY 15 196	3 - 5 4 - 9
411		NOV 20 1/964	5	MAY 24 196	.5 C

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		FREEZE D		DEVIATION	. THAW DATE	DEVIATIO
		NOV -14 NOV 13			MAY 30 1966 MAY 29 1967	· 6 5
		NOV 19	1967	4	MAY 28 1968	4
		NOV 9 NOV 16		1	MAY 29 1969 MAY 29 1970	-15 5
	TOTAL	NOV 22	1970		**************************************	
	EARLY	NOV 4			MAY 9	
	MEAN	-NOV-22 NOV 15		5+05	JUN _1 MAY 24:	6.45
72.	NAME OF LAKE	: WINNIPE	GOSIS	ID CODE:	0401.83	
	STATE/PROV:	MAN				
	-LONG: 99-55	- W		SO-KM)MEAN-DEP-	: 0.0 H:	
					(METERS)	
	FREEZETHAW	HISTORY		NUMBER OF ENTRI	£5: 11	
-,	······································	FREEZE D		DEVIATION	THAW DATE	 DEVIATIO
		*******	* * * *		MAY 8 1946	-5
		NOV 16 NOV 9		4 -3	MAY 16 1947 May 19 1948	3 €
		NOV 12	1948	0	MAY 6 1949	-7
		NOV 18 NOV 10	1949 1950	6 -2	MAY 5 1950 1951 1951	8 -1
	······································	DCT 29	1951	-14	MAY 5 1952	-e
		NOV 12	1952	ò	MAY 15 1953	
				12 2	MAY 15 1954 1955 - 20 YAM	7
		NOV 5	1955	- 7	MAY 22 1956	9
	TOTAL EARLY	0CT 29			MAY 5	
	EARLY LATE	OCT 29 NOV 24		6. 77	MAY 5	···· 5-02
	EARLY	OCT 29		6.77		5.92
73.	EARLY LATE MEAN	OCT 29 NOV 24 NOV 12			MAY 5 MAY 22 MAY 13	5.92
73.	EARLY LATE MEAN 	OCT 29 NOV 24 NOV 12 	N	ID CODE:	MAY 22 MAY 13 MAY 13	5.92
73.	EARLY LATE MEAN 	OCT 29 NOV 24 NOV 12 : BRERETO	N FA:	ID CODE: 9.24 MAX DEPTH	MAY 5 MAY 22 MAY 13 040193	5.92
73.	NAME OF LAKE STATE/PROV: LAT: 49 54	OCT 29 NOV 24 NOV 12 : BRERETO	N FA:	ID CODE: 9.24 MAX DEPTH	7 YAM 22 YAM 13 TAM 240193	5.92
	NAME OF LAKE STATE/PROV: LAT: 49 54 LONG: 94 35	OCT 29 NOV 24 NOV 12 : BRERETO MAN N AR	N EA: (:	ID CODE: 9.24 MAX DEPTH	MAY 22 MAY 13 040193 : 6.0 H: 4.5 (METERS)	5.92
	NAME OF LAKE STATE/PROV: LAT: 49 54 LONG: 94 35	OCT 29 NOV 24 NOV 12 BRERETO MAIN N W HISTORY	N EA: (:	ID CODE: 9.24 MAX DEPTH SQ KM) MEAN DEPTH NUMBER OF ENTRI	MAY 22 MAY 13 040193 : 6.4 H: 4.5 (METERS)	
	NAME OF LAKE STATE/PROV: LAT: 49 54 LONG: 94 35	OCT 29 NOV 24 NOV 12 : BRERETO MAN N AR	N EA: (:	ID CODE: 9.24 MAX DEPTH SQ KM) MEAN DEPTH NUMBER OF ENTRI	MAY 22 MAY 13 040193 : 6.0 H: 4.5 (METERS) ES:1	5.92
	EARLY LATE MEAN NAME OF LAKE STATE/PROV: LAT: 49 54 LONG: 94 35 FREEZE/IHAW	OCT 29 NOV 24 NOV 12 : BRERETO MAN N AR HISTORY FREEZE D ******	N EA: (:	ID CODE: 9.24 MAX DEPTH SQ KM) MEAN DEPTH NUMBER OF ENTRI	MAY 5 MAY 22 MAY 13 040193 : 6.4 H: 4.5 (METERS) ES:1 THAW DATE APR 15 1958	DEVIATIO
	EARLY LATE MEAN NAME OF LAKE STATE/PROV: LAT: 49 SA LONG: 94 35 FREEZE/IHAW	OCT 29 NOV 24 NOV 12 : BRERETO MAIN AR W HISTORY FREEZE D *******	N EA: (!	ID CODE: 9.24 MAX DEPTH SQ KM) MEAN DEPTH NUMBER OF ENTRI	MAY 5 MAY 22 MAY 13 040193 : 6.0 H: 4.5 (METERS) ES:1 THAW DATE APR 15 1958 APR 15	DEVIATIO
	EARLY LATE MEAN NAME OF LAKE STATE/PROV: LAT: 49 SA LONG: 94 35 FREEZE/IHAW	OCT 29 NOV 24 NOV 12 : BRERETO MAIN AR W HISTORY FREEZE D *******	N EA: (!	ID CODE: 9.24 MAX DEPTH SQ KM) MEAN DEPTH NUMBER OF ENTRI	MAY 5 MAY 22 MAY 13 040193 : 6.0 H: 4.5 (METERS) ES:1 THAW DATE APR 15 1958 APR 15	DEVIATIO
	EARLY LATE MEAN NAME OF LAKE STATL/FROV: LAT: 49 54 LONG: 94 35 FREEZE/IHAW TOTAL EARLY LATE MEAN	OCT 29 NOV 24 NOV 12 : BRERETO MAN AR HISTORY FREEZE D ****** ****** ****** ******	N EA: (!	ID CODE: 9.24 MAX DEPTHON MEAN DEPTHON NUMBER OF ENTRIN	MAY 5 MAY 22 MAY 13 040193 : 6.0 H: 4.5 (METERS) ES: 1 THAW DATE APR 15 1958 1 APR 15 APR 15 APR 15	DEV I AT I C
	EARLY LATE MEAN NAME OF LAKE STATE/FROV: LAT: 49 54 LONG: 94 35 FREEZE/IHAW TOTAL EARLY MEAN NAME OF LAKE	OCT 29 NOV 24 NOV 12 : BRERETO MAN AR HISTORY FREE ZE D ****** ******* ******* : CADDY	N EA: (!	ID CODE: 9.24 MAX DEPTH SQ KM) MEAN DEPTH NUMBER OF ENTRIP	MAY 5 MAY 22 MAY 13 040193 : 6.0 H: 4.5 (METERS) ES: 1 THAW DATE APR 15 1958 1 APR 15 APR 15 APR 15	DEVIATIO 0
74.	EARLY LATE MEAN NAME OF LAKE STATL/FROV: LAT: 49 54 LONG: 94 35 FREEZE/IHAW TOTAL EARLY LATE MEAN NAME OF LAKE STATE/PROV:	OCT 29 NOV 24 NOV 12 : BRERETO MAIN N HISTORY FREEZE D ****** ******* ******* : CAODY MAN	N EA: (!	ID CODE: 9.24 MAX DEPTHON MEAN DEPTHON NUMBER OF ENTRIN	MAY 5 MAY 22 MAY 13 040193 : 6.4 H: 4.5 (METERS) ES:1 THAW DATE APR 15 APR 15 APR 15 APR 15 APR 15 APR 15	DEVIATIO 0
74.	EARLY LATE MEAN NAME OF LAKE STATL/FROV: LAT: 49 54 LONG: 94 35 FREEZE/IHAW TOTAL EARLY LATE MEAN NAME OF LAKE STATE/PROV:	OCT 29 NOV 24 NOV 12 : BRERETO MAIN N HISTORY FREEZE D ****** ******* ******* : CAODY MAN	N EA: (!	ID CODE: 9.24 MAX DEPTH SQ KM) MEAN DEPTH DEVIATION 0.0 ID CODE: 3.05 MAX DEPTH MEAN DEPTH MEAN DEPTH	MAY 5 MAY 22 MAY 13 040193 : 6.4 H: 4.5 (METERS) ES:1 THAW DATE APR 15 APR 15 APR 15 APR 15 APR 15 APR 15	DEVIATIO 0
74.	EARLY LATE MEAN NAME OF LAKE STATL/FROV: LAT: 49 54 LONG: 94 35 FREEZE/IHAW TOTAL EARLY LATE MEAN NAME OF LAKE STATE/PROV:	CT 29 NOV 24 NOV 12 : BRERETO MAN AR HISTORY FREE ZE D ****** ****** CADDY MAN AR	N EA: (!	ID CODE: 9.24 MAX DEPTH SQ KM) MEAN DEPTH DEVIATION 0.0 ID CODE: 3.05 MAX DEPTH MEAN DEPTH MEAN DEPTH	MAY 5 MAY 22 MAY 13 040193 : 6.0 H: 4.5 (METERS) ES:1 THAW DATE APR 15 AP	DEVIATIO 0
74 •	TOTAL EARLY LATE MEAN NAME OF LAKE STATL/FROV: LAT: 49 54 LONG: 94 35 FREEZE/IHAW TOTAL EARLY LATE MEAN NAME OF LAKE STATE/PROV: LAT: 49 45 LONG: 94 43	PREEZE DAYANAN ARWANAN	N EA: (:	ID CODE: 9.24 MAX DEPTHON MEAN DEPTHON NUMBER OF ENTRIPORT 1D CODE: 3.05 MAX DEPTHON NUMBER OF ENTRIPORT NUMBER OF ENTRIPORT	MAY 25 MAY 13 040193 : 6.0 H: 4.5 (METERS) ES:1 THAW DATE APR 15 A	DEVIATIO 0 0.C
74.	TOTAL EARLY LATE MEAN NAME OF LAKE STATL/FROV: LAT: 49 54 LONG: 94 35 FREEZE/IHAW TOTAL EARLY LATE MEAN NAME OF LAKE STATE/PROV: LAT: 49 45 LONG: 94 43	PREEZE DAYANAN ARWANAN	N EA: (:	ID CODE: 9.24 MAX DEPTHON MEAN DEPTHON NUMBER OF ENTRIPORT 1D CODE: 3.05 MAX DEPTHON NUMBER OF ENTRIPORT NUMBER OF ENTRIPORT	MAY 25 MAY 13 040193 : 6.4 H: 4.5 (METERS) ES:1 THAW DATE APR 15 1958 APR 15 ES:1 THAW DATE THAW DATE THAW DATE	DEVIATIO O.C DEVIATIO
74.	EARLY LATE MEAN NAME OF LAKE STATL/FROV: LAT: 49 54 LONG: 94 35 FREEZE/IHAW TOTAL EARLY LATE MEAN NAME OF LAKE STATE/PROV: LAT: 49 49 LONG: 94 43 FREEZE/THAW	OCT 29 NOV 24 NOV 12 : BRERETO MAN AR HISTORY ****** CADDY MAN AR HISTORY FREEZE A****** FREEZE C ********	N EA: (:	ID CODE: 9.24 MAX DEPTHON MEAN DEPTHON DEVIATION 10 CODE: 10 CODE: 3.05 MAX DEPTHON MEAN DEPTHON	MAY 25 MAY 13 040193 : 6.0 H: 4.5 (METERS) ES: 1 THAW DATE APR 15 APR 15 APR 15 APR 15 APR 15 APR 15 THAW DATE APR 15 APR 15 APR 15 APR 15 APR 15 APR 15 1 1958 1 1958 1 1958	DEVIATIO 0 0.0
74.	EARLY LATE MEAN NAME OF LAKE STATL/FROV: LAT: 49 54 LONG: 94 35 FREEZE/IHAW TOTAL EARLY LATE MEAN NAME OF LAKE STATE/PROV: LAT: 49 69 LONG: 94 43	## ## ## ## ## ## ## ## ## ## ## ## ##	N EA: (:	ID CODE: 9.24 MAX DEPTHON MEAN DEPTHON NUMBER OF ENTRIPORT 1D CODE: 3.05 MAX DEPTHON NUMBER OF ENTRIPORT NUMBER OF ENTRIPORT	MAY 25 MAY 13 040193 : 6.0 H: 4.5 (METERS) ES: 1 THAW DATE APR 15 1958 APR 15	DEVIATIO O.C DEVIATIO

	-NAME OF LAKE STATE/PROV:		ON.		1D_CODE:	040213		
	LAT: 49 4:	2 N	AREA:		MAX DEPTH:			
	LONG: 95 1:	5 W		(SQ KM)	MEAN DEPTH	(METERS)		
•••	FREEZE/THAW	1110700						
	FREEZEZIHAW	HISTOR	т	NUMBE	R OF ENTRIE	S: 8		
			E DATE	DEV	/IATION	THAW D		DEVIATIO
			******* 1 1952		-3	MAY-27		27
		DEC DEC 1	7 1953 7 1954		_ 3	* 本本本本本本	****	
		NOA 5	4 1955	· ·	13 10	APR 13 MAY 11	1955 1956	-17 11
	· · · · · · · · · · · · · · · · · · ·	—DEC NOV 3	41-95 <i>6</i> 0 1957		-4	MAY5 APR 17	1957 . 1958	5 -13
		****	****		7	APR 17	1959	-13
	EARLY	NOV 2	Ą			APR 13		
	LATE MEAN	DEC 1			11	MAY 27		
				/ •		APR 30		15.82
76.	NAME OF LAKE		HAWK		ID CODE:	040223		•
	LAT: 49 46 LONG: 95 11	5 N	AREA:	0.0 (SQ KM)	MAX DEPTH: MEAN DEPTH	111.9	-	
						(METERS)		•
	EREEZEZTHAW_	HISTOR	Y	NUMBE	R_OF_ENTRIE	S:5		
		EDEC 7	E DATE	DE M	LATION	T. (A) (
		DEC 2	6 1954		IATION 5	THAW D. APR 13	1955	DEVIATIO -14
			* * * * * * * * *			MAY 11	1955 1957	14 10
			01.5.57			APR 17	1958	~10
	TOTAL	3	8 1959	-	13	**************************************	य के के के के	
	EARLY LATE	DEC 3				APR-13 MAY 11		
·	MEAN	DEC 2		9.	57	APR 27		12.17
77.	NAME OF LAKE		INGTON		ID CODE: (04 02 33		
	STATE/PROV: Lat: 55 56	- N	APEA:	-165*CO	MAX-DEPT-	36-6		
	LONG: 100 15	. W		(SO KM)	MEAN DEPTH	9.2 (METERS)		
	···				<u> </u>			
	FREEZE/THAW	HISTORY	Y	NUMBE	R OF ENTRIES	3: 1		
	FREEZE/THAW	· · · · · · · · · · · · · · · · · · ·				·	. •	
		FRESZE NOV 22	Y 	DEV	IATION O	5: 1 ————————————————————————————————————		DEVIATIO
	TOTAL	FRESZE NOV 22	DATE 2 1959	DEV	IATION	THAW D: ************************************		
		FRESZE NOV 22	DATE 2 1959	DEV	IATION O	————————————————————————————————————		

78.	NAME OF LAKE STATE/PROV:	MAN	1.D.	-CODE:040	243	
	LAT: 53 16	N AREA:	1340.00 MA	X DEPTH:	0.0	
	LUNG: 100 9	, W	(SQ KM) ME		U.C IETERS)	
-	FREEZE/THAW	HISTORY	NUMBER OF	ENTRIES:	1	
		FREEZE DATE		ION	THAW DATE	DEVIATIO
	TOTAL EARLY	NOV 28 1958 1 NOV 28	3 o		MAY 24 1959 I MAY 24 MAY 24	С
	LATE MEAN	NOV 28 NOV 28	0.0		MAY 24 MAY 24	0.0
79.		CROSS	10	CODE: 0 40	253	
· · · · · · · · · · · · · · · · · · ·		MAN N AREA:	707.00 MA) (SQ KM) MEA	C DEPTH: NO DEPTH:	0.0 0.0 ETERS)	
	FREEZE/THAW	HISTORY	NUMBER OF	ENTRIES:	1	
,		FREEZE DATE	DEVIATI	ON	THAW DATE	DEVIATIO
	· TOTAL	1 NOV 15		•	1	
	LATE	NOV 15			MAY 19	
	MEAN	NOV 15	0.0		MAY 19	0.0
	NAME OF LAKE	GOOSE MAN N ARFA:	137.00 MA) (SQ KM) MEA	CODE: 040	263	0.0
	NAME OF LAKE STATE/PROV: LAT: 54 23 LONG: 101 25	GOOSE MAN N. ARFA:	10	CODE: 040 C DEPTH: N DEPTH:	263 0.0 0.0 ETERS)	0.0
	MEAN NAME OF LAKE STATS/PROV: LAT: £4 23 LONG: 101 25 FREEZE/THAW	GODSE MAN ARFA: W HISTORY FREEZE DATE DEC 21 1957	137.00 MA) (SQ KM) MEA NUMBER OF	CODE: 040 C DEPTH: IN DEPTH: (M ENTRIES:	263 0.0 0.0 ETERS) 2 THAW DATE ************************************	DEVIATIO
	MEAN NAME OF LAKE STATE/PROVI LAT:54 23 LONG: 101 25 FREEZE/THAW	FREEZE DATE DEC 21 1957 **********	137.00 MA) (SQ KM) MEA NUMBER OF	CODE: 040 C DEPTH: N DEPTH: (M ENTRIES:	263 0.0 0.0 ETERS) 2 THAW DATE ************************************	DEVIATIO
	MEAN NAME OF LAKE STATE/PROV: LAT: 54 23 LONG: 101 25 FREEZE/THAW	EREEZE DATE DEC 21 1957	137.00 MA) (SQ KM) MEA NUMBER OF	CODE: 040 C DEPTH: IN DEPTH: (M ENTRIES:	263 0.0 0.0 ETERS) 2 THAW DATE ************************************	DEVIATIO
	MEAN NAME OF LAKE STATS/PROV: LAT: 54 23 LONG: 101 25 FREEZE/THAW TOTAL EARLY LATE MEAN NAME OF LAKE	GODSE MAN ARFA: W HISTORY EREEZE_DATE DEC 21 1957 *********** DEC 21 DEC 21 DEC 21 DEC 21 DEC 21 CONTROL OF THE TRANSPORT GRANVILLE	10 137.00 MAX (SQ KM) MEA NUMBER OF DEVIATI	CODE: 040 C DEPTH: IN DEPTH: (M ENTRIES:	263 0:0 0:0 ETERS) 2 THAW DATE ************************************	DEVIATIO O
	MEAN NAME OF LAKE STATE/PROVI LAT: P64 23 LONG: 101 25 FREEZE/THAW TOTAL EARLY LATE MEAN	GODSE MAN N ARFA: W HISTORY FREEZE_DATE DEC 21 1957 ******** 1 DEC 21	10 137.00 MAX (SQ KM) MEA NUMBER OF DEVIATI 0 0.0	CODE: 040 CDEPTH: N DEPTH: ON CODE: 040 DEPTH: N DEPTH:	263 0:0 0:0 ETERS) 2 THAW DATE ************************************	DEVIATIO O
	MEAN NAME OF LAKE STATE/PROV: LAT:54 23 LONG: 101 25 FREEZE/THAW TOTAL EARLY LATE MEAN NAME OF LAKE STATE/PROV: LAT: _56 18 LONG: 100 30	GODSE MAN N ARFA: W HISTORY FREEZE_DATE DEC 21 1957 ******** 1 DEC 21	10 137.00 MAX (SQ KM) MEA NUMBER OF DEVIATI 0 10 469.00 MAX (SQ KM) MEA	CODE: 040 CODE: 040 ENTRIES: DN CODE: 040 DEPTH: N DEPTH:	263 0.0 0.0 ETERS) 2 THAW DATE ************************************	DEVIATIO O
	MEAN NAME OF LAKE STATE/PROVI LAT: £4 23 LONG: 101 25 FREEZE/THAW TOTAL EARLY LATE MEAN NAME OF LAKE STATE/PROVI LAT: £6 18 LONG: 100 30 FREEZE/THAW	GODSE MAN N ARFA: HISTORY FREEZE DATE DEC 21 1957 ********* DEC 21 DEC 21 DEC 21 CRANVILLE MAN N AREA: W HISTORY FREEZE DATE NOV 22 1958	10 137.00 MAX (SQ KM) MEA NUMBER OF DEVIATI 0 469.00 MAX (SQ KM) MEA	CODE: 040 ENTRIES: CODE: 040 DEPTH: N DEPTH: N DEPTH: CODE: 040	263 0.0 0.0 ETERS) 2 THAW DATE ************************************	DEVIATIO 0 0.0
	MEAN NAME OF LAKE STATE/PROV: LAT:54 23 LONG: 101 25 FREEZE/THAW TOTAL EARLY LATE MEAN NAME OF LAKE STATE/PROV: LAT: _56 18 LONG: 100 30	GODSE MAN N ARFA: HISTORY FREEZE DATE DEC 21 1957 ******** 1 DEC 21 DEC 21 DEC 21 DEC 21 CRANVILLE MAN AREA: HISTORY FREEZE DATE	10 137.00 MAX (SQ KM) MEA NUMBER OF DEVIATI 0 0.0 ID 469.00 MAX (SQ KM) MEA	CODE: 040 CODE: 040 ENTRIES: DN CODE: 040 DEPTH: N DEPTH: (ME ENTRIES:	263 0.0 0.0 ETERS) 2 THAW DATE ************************************	DEVIATIO O

	-NAME-OF-LAKE STATE/PROV:	MAN					
	LAT: 54 9	N A	REA:	0.0	MAX DEPTH:	7.6	
	LONG: 101 30	W		(SQ KM)	MEAN DEPTH:	Maters)	
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	FREEZE/THAW	HISTORY		NUMBE	R OF ENTRIES:	1	
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							DEN 1 1 T 1 C
		FREEZE	DATE	DEV	IATION	THAW DATE MAY 12 1958	DEVIALIC
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	L'ATE MEAN			0.	o	MAY 12 MAY 12	0.0
		•					•
-83	NAME OF LAKE	SOUTH	ATOM	N		0313 *** ** ** *	
	STATE/PROV:	MAN A	DEA!	2750-00	MAX DEPTH: MEAN DEPTH:	20.4	
	LONG: 58 20	₩ - ^	nea.	(SQ KM)	MEAN DEPTH:	-3.5	
					(METERS)	
	FREEZE/THAW	HISTORY		NUMBE	R OF ENTRIES:	2	
							
	TOTAL	FREEZE	DATE	DEV	IATION	THAW DATE JUN 11 1958	DEV IAT 10
		NOV 9	1957	<u>-</u>	-9 8	JUN 11 1958	C
	TOTAL	2	T 2 2 2			1	
	EARLY	NOV 9				JUN 11	
	LATE Mean	NOV 26 NOV 18			51	JUN 11 	0.0
84.	NAME OF LAKE	: SPLIT			ID C00E: 04	0323	
	STATEZPROV: .	. MAN					
	LONG: 96 17	N A W	eea.	(SQ.KM)	MAX DEPTHI	7.0	
				-		METERS)	
	FRÉEZEZTHAW	HISTORY		NUMBE	R OF ENTRIES:	5	
	THE LEEP TOWN				<u> </u>	···	·
		FREEZE	DATE	DEV	IATION	THAW DATE	DEVIATIO
		*****	****			MAY 21 1948 -MAY 21 1949	2
		******* ******	*****			MAY 30 1950	11
		本本本なまな本	****			MAY 17 1951	-2
	JATCT	O *******	****			MAY 6 1952	-13
	EARLY					MAY 6	
	LATE	***		•	^	MAY 30	
	MEAN	****		0.	<u> </u>	MAY 19	7.77
85 -	NAME OF TAKE	TWALKER			TIDTCODE: 04	0333	
85 •	NAME OF LAKE STATE/PROV:	MAN				0333 . "	
85 •	STATE/PROV: LAT: 54 43	MAN 			_MAX_DEPT H:	0.0.1	
85•	STATE/PROV: LAT: 54 43	MAN		161.00 (SO KM)	-MAX DEPT H:	0.0.1	
85•	STATE/PROV: LAT: 54 43 LONG: 97 0	MAN N A		(SQ KM)	MAX DEPTH: MEAN DEPTH:	0.0 0.0 METERS)	···
85•	STATE/PROV: LAT: 54 43	MAN N A		(SQ KM)	-MAX DEPT H:	0.0 0.0 METERS)	···
85•	STATE/PROV: LAT: 54 43 LONG: 97 0	MAN N A		(SQ KM)	MAX DEPTH: MEAN DEPTH:	0.0 0.0 METERS)	···
85•	STATE/PROV: LAT: 54 43 LONG: 97 0	MAN N A HISTORY	REA:	NUMBE	MAX DEPTH: MEAN DEPTH: (R OF ENTRIES:	0.0 0.0 METERS)	
85.	STATE/PROV: LAT: 54 43 LONG: 97 0	MAN N A HISTORY	REA:	NUMBE	MAX DEPTH: MEAN DEPTH: (R OF ENTRIES:	0.0 0.0 METERS)	DEV 1 AT 18
85.	STATE/PROV: LAT: 54 43 LONG: 97 0 FREEZE/THAW	MAN A HISTORY EREEZE NOV 9	REA:	NUMBE	MAX DEPT H: MEAN DEPTH: (R OF ENTRIES:	0.0 0.0 METERS) 1 THAW DATE MAY 20 1959	
85.	STATE/PROV: LAT: 50 43 LONG: 97 0 FREEZE/THAW	MAN A W HISTORY EREEZE NOV 9	REA:	NUMBE	MAX DEPT H: MEAN DEPTH: (R OF ENTRIES:	0.0 0.0 METERS) 1 THAW DATE	

	STATE/PROV:				-I D-C3D= :04	3343	
	LAT: 52 7	7 N	AREA:	233.00	MAX DEPTH:	9.0	
	LUNG: 99 35	o w		(SO KM)	MEAN DEPTH: (METERS)	
	FREEZE/THAW	HISTOR	Υ	NUMBER	OF ENTRIES:	<u>1</u>	
			E DATE		ATION	THAW DATE	DEVIATIO
	TOTAL EARLY	1	9 1557 9		0	APR 21 1958 1 APR 21	C
	LATE MEAN		ģ	0.0)	APR 21 APR 21	0.0
87.	NAME OF LAKE	E: WHEA	TCROFT		10-0002:04	0353	
	STATE/PROV: LAT: 56 49 LONG: 101 1	MAN N C			MAX DEPTH:		
	FREEZE/THAW	HISTOR	Y	NUMBER	R OF ENTRIES:	METERS)	
			E DATE		ATION	THAW DATE	DEVIATION
	TOTAL	1	0 1558		0	U	
	LATE	NOV 2	0				
	MEAN	NOV 2		0.0)		0.0
86.	STATE/PROV:	MAN			ID CODE: 04		
	LONG: 95 33			(SQ KM)	MAX DEPTH: . MEAN DEPTH: .		-,
					· · · · · · · · · · · · · · · · · · ·	METERSI	
	FREEZE/THAW	HISTOR	Y	NUMBER	OF ENTRIES:		
	FREEZE/THAW	FREEZ	E_DATE_	DE.V.I	OF ENTRIES:	2 THAW_DATE	DEVIATION
		FREEZ NOV 3 NOV	E DATE 0 1958	DEVI	ATION	2 THAW_DATE MAY 2 1959 ********	DEVIATION
	TOTAL EARLY	FREEZ NOV 3 NOV 2 NOV	E DATE 0 1958 5 1959	DEVI	ATION	2 THAW_DATE MAY 2 1959 ***********************************	
	TOTAL	FREEZ NOV 3 NOV	E_DATE_ 0 1958 5 1959	DEVI	ATION	2 THAW_DATE MAY 2 1959 ***********************************	
89•	TOTAL EARLY LATE MEAN	EREEZ NOV 3 NOV 2 NOV 3 NOV 1	E_DATE_ 0 1958 5 1959	DEVI 11 12.5	ATION	2 —THAW_DATE	C
89•	TOTAL EARLY LATE MEAN	FREEZ NOV 3 NOV 2 NOV 3 NOV 1	E_DATE 0 1958 5 1959 5 0 8	DEVI	ATION_2 3 ID CODE: 04 MAX DEPTH: MEAN DEPTH:	2 THAW_DATE MAY 2 1959 ***********************************	C
89.	TOTAL EARLY LATE MEAN NAME OF LAKE STATE/PROV: LAT: 56 55	FREEZ NOV 3 NOV NOV 3 NOV 1	E_DATE_ 0 1958 5 1959 5 0 8	12.5 21.60 (SQ KM)	ATION_2 3 ID CODE: 04 MAX DEPTH: MEAN DEPTH:	2 THAW_DATE_ MAY 2 1959 ********* MAY 2 MAY 2 MAY 2 MAY 2 MAY 2 0383 21.3 0.0 METERS)	· ·
	TOTAL EARLY LATE MEAN NAME OF LAKE STATE/PROVE LAT: 56 55 LONG: 101 26	FREEZ NOV 3 NOV 2 NOV 3 NOV 1 E: ZED MAN 5 N W HISTOR	E_DATE 0 1958 5 1959 5 0 8 AREA:	21.60 (SQ KM)	ATION 2 3 ID CODE: 04 MAX DEPTH: MEAN DEPTH: (2. OF ENTRIES:	2 THAW_DATE MAY 2 1959 ********** MAY 2 MAY 2 MAY 2 MAY 2 MAY 2 THAW DATE ***********************************	0.0
	TOTAL EARLY LATE MEAN NAME OF LAKE STATE/PROV: LAT: 56 55 LONG: 101 24 FREEZE/THAW	FREEZ NOV 3 NOV 1 PREEZ NOV 1	E_DATE_0 1958 5 1959 5 0 8 AREA: YE_DATE 5 1958 5	21.60 (SQ KM)	ATION 2 3 ID CODE: 04 MAX DEPTH: MEAN DEPTH: (2. OF ENTRIES:	2 THAW_DATE MAY 2 1959 ********* MAY 2 MAY 2 MAY 2 MAY 2 THAW DATE ***********************************	0.0

90	NAME-OF-LAKE			-		I_D_C03E_:	043394			
	STATE/PROV: LAT: 51 2				0.0		•			
	LUNG: 95 40			•	(SQ KM)	MEAN DEP	TH: O.	0	 	
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				DATE 1968		VIATION -2			ATE 1969	DEVIATIO
			15 13			4 2	MAY	7	1970	9
	· · · · · · · · · · · · · · · · · · ·	NOV	7	1 571		-4	MAY	2	1971 1972	· · · · · 4
	TOTAL	NO V 5	11	1972	2	0			1973	-9
	EARLY	NOV	7				AFR	19		
	LATE MEAN	00 0 У ОИ			2	83	MAY APR	-23-		
		-								
91.	NAME OF LAKE	: RE	IND	EER/BR	OCHET	ID CODE:	040402			* .
	LAT: 57 53 LONG: 101 41	l Ni	- 1	AREA:	5569.00 (SQ KM)	MAX DEPT	F: 215.4)		
	20140. 101 41				(50 KM)	MEAN JEP	TH: 17.4 - (METE			
	FREEZE/THAW	HIST	ORY		NUMBE	DE ENTR	IES 2	7		
							*5.7.	<u></u>		
				DATE		/IATION	TH.	AW D	ATE	DEVIATIO
		DCT	19	1946		110	JUN MAY		1947 -1948	
		NŌV	11	1543	;	12	JUN	3	1949	- <u>2</u>
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		ac t	21	1951		-9	. MAY	19	1952	-17
		_V.QN V 0 N		1 952 1 953			NU.L		1953 . 1954	<u>3</u>
	<u> </u>	NOV OCT	- 27	1954 1955		2	MAY	31	1955	-5
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		****		195 7 *****		9	YAM JUN		1958 1959	- - 6 - 8
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		_ND.V. OCT		1. \$ 68 1.969		5	YAMJUN		1969 1970	-10 10
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	TOTAL EARLY	26 OCT	12-				. 2	7		•
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	53553545							•			
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			NOV	27	971		5	M.A. M.A	Y 25	1971 1972	2
	TOT	Δ1	NOV	15 1	1972		-6	<u>M A</u>	¥ 28	1972 1973	<u></u>
	EAR	Ü	NOV	15		•		MA	Y 17		
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93.	SIALEZPR	UV:	ONI	Г			ID CODE:				
	LAT: 5	0 17	' N	ARE	Α:	0.0	MAX DEPTH	: 0	• 0		
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	LONG: 9	1 37	W			(SQ KM)	MEAN DEPTH	4: 0 /MET	• 0 E D C 3		
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	FREEZ	E/T	- A W	HIST	ORY	,	NUME	ER OF ENTR	ies:		7			
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	LUNG.	91	37	W			(SQ KM)	MEAN DEP	IHI (ME	O.	0 RS)			
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	NAME (OF L	AKE	: LAI	 <e< td=""><td>KENOGA</td><td>MISIS</td><td>ID CODE:</td><td>0500</td><td>64</td><td></td><td>•</td><td></td><td></td></e<>	KENOGA	MISIS	ID CODE:	0500	64		•		
		7 D C O											7.344.4.	
	LONG:	86	57	W			(SQ KM)	MAX DEPT I	TH:	<u>0</u> .0	Ö			
									€ M±	1 = 1	K2 }			
	EREEZ	EZIŁ	:A w:	HIST	JR.Y.		NUMB	ER_OF ENTRI	IES:	6	5		-	
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						DATE	DE	MOITAIN			AW_D		ĺ	DEVIATIO
				NOV			· · · · · · · · · · · · · · · · ·	- 7		AY AY	12	1968 1 969		2 -3
				NOV	20	1969		5	M	ΑY	12	1970		2
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NOV 22 1972		STATE/PROV: LAT: 49 41			REA:	0.0	MAX DEPT	r: 0.				
FREEZE DATE DEVIATION THAW DATE DEVIATION THAW DATE NOV 13 155 0 0 MAY 11 1969 2 2 1014 1 1014 1 1969 2 2 1014 1 1		LUNG: 86 57	W			(SQ KM)	MEAN DEP					
NOV 13 1507		FREEZE/THAW	ніѕтс	RY		NUMBE	NUMBER OF ENTRIES: 3					
NOV 13 1567			FREE	 ZE (A TE	DEV	IATION	ТН	A₩ D	ATE	DEVI	 AT I C
TOTAL 3			NOV	Ğ	1968		-4	MAY	5	1969		-4
99. NAME OF LAKE: LAKE OF THE WOOD ID CODE: 050104 STATE/PROV: ONT AREA: 0.0 MAX DEPTH: 0.0 LONG: 94 22 W (SO KM) MEAN DEPTH: 0.0 (METERS) FREEZE/THAW HISTORY NUMBER OF ENTRIES: 19 DEC 6 1560 0 8 MAY 15 1960 5 DEC 6 1560 0 8 MAY 15 1960 5 DEC 6 1560 0 8 MAY 15 1960 5 DEC 6 1560 0 8 MAY 15 1960 5 DEC 6 1560 0 8 MAY 15 1960 5 DEC 6 1560 0 8 MAY 15 1960 5 DEC 6 1560 0 8 MAY 15 1960 5 DEC 6 1560 0 8 MAY 15 1960 5 DEC 6 1560 0 9 MAY 8 1960 0 9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		EARLY	8 V 0 N	9			•	MAY	3 5			
STATE/PROV: ONT LAT: 45 40 N AREA: 0.0 MAX DEPTH: 0.0 LONG: -94 22 W (SQ-KM) MEAN JEPTH: 0.0 FREEZE/THAW HISTORY NUMBER OF ENTRIES: 18 FREEZE DATE DEVIATION THAW DATE ************************************						3. 	70 	MAY	9		2 • 5	3 ,
STATE/PROV: ONT LAT: 45 &R N AREA: 0.0 MAX DEPTH: 0.0 LONG: 94 22 W (SU KM) MEAN DEPTH: 0.0 (METERS) FREEZE/THAW HISTORY NUMBER OF ENTRIES: 18 FREEZE DATE MAY 16 .1956 6 NOV 24 1956 -4 ************ DEC 11 1957 13 ************* *********************	99.	NAME OF LAKE	: LAK	KE OF	THE	WOOD	ID CODE:	959104				
CONG: 94 22 W		STATE/PROV:	ON 1	Γ	•					• •		
FREEZE DATE								гн:о.	Č			
**************************************		FREEZE/THAW	нізт	RY		NUMBE	R-OF-ENTR	•			·· ·	<i></i>
NOV 24 1956	-					D E V	IATION				DEVI	
NOV 17 1959			NO V DEC	24 11	1956 1957			***	****	****	-	
DEC 6 1562 8 MAY 7 1963 -3 DEC 7 1663 9 MAY 8 1964 -2 NUY 25 1581 -3 MAY 7 1255 -3 NUY 26 1965 -2 MAY 11 1965 1 NUY 26 1965 -2 MAY 12 1967 2 NUY 28 1567 0 MAY 12 1967 2 NUY 28 1567 0 MAY 12 1969 -6 NUY 29 1968 1 MAY 12 1969 2 NUY 20 1569 -3 MAY 11 1970 1 DEC 4 1970 6 APR 29 1971 -11 NUY 22 1572 -6 ***********************************			NOV	17	1959	_		MAY	15	1960		5
NOV 26 1965			DEC	6	1962			MAY	7	1963		-3
NOV 28 1967 O			NOV NOV	25 26	1961 1965		-3 -2	MAY May	1 1	1955 1965		= 3 1
DEC 4 1970 6 APR 29 1971 -11 NOV 29 1971 1 MAY 10 1972 0 NOV 22 1972 -6 ************* TOTAL 15 EARLY NOV 17 LATE DEC 11 MEAN NOV 28 6.90 MAY 16 MEAN NOV 28 6.90 MAY 10 4.43 100. NAME OF LAKE: ATTAWAPISKAT ID CODE: 050114 STATE/PROV: ONT LAT: \$2 14 N AREA: 0.0 MAX DEPTH: 0.0 LONG: 87 53 W (SQ KM) MEAN DEPTH: 0.0 (METERS) FREEZE/THAW HISTORY NUMBER OF ENTRIES: 23 FREEZE/THAW HISTORY NUMBER OF ENTRIES: 23 FREEZE CATE DEVIATION THAW DATE DEVIATION NOV 17 1948 7 MAY 11 1949 -12 NOV 1 1949 -9 JUN 2 1950 10 NOV 7 1952 -3 MAY 25 1953 2 NOV 7 1953 -3 **********************************			NOV NOV	28 29	1967 1968		1	Y A M Y A M	4 12	1968 1969	<u></u>	-6
TOTAL 15 EARLY NOV 17 LATE DEC 11 MEAN NOV 28 6.90 MAY 10 100. NAME OF LAKE: ATTAWAPISKAT STATE/PROV: ONT LAT: 52 14 N LONG: 87 83 W (SQ KM) MEAN DEPTH: 0.0 (METERS) FREEZE CATE NOV 17 1548 7 MAY 11 1949 -12 NOV 1 1549 NOV 1 1552 NOV 7 1553 NOV 1 1555 4 JUN 7 1955 -16 NOV 14 1555 4 JUN 7 1956 15			DEC NO.V	4 29	1970		6	APR MAYMAY		1971 1972 _	- 1	i C
LATE DEC 11	_		1.5		1972		-6		15	*****		
100. NAME OF LAKE: ATTAWAPISKAT ID CODE: 050113 STATE/PROV: ONT LAT: 52 14 N AREA: 0.0 MAX DEPTH: 0.0 LONG: 87 53 W (SQ KM) MEAN DEPTH: 0.0 (METERS) FREEZE/THAW HISTORY NUMBER OF ENTRIES: 23 FREEZE DATE DEVIATION THAW DATE DEVIATION NOV 17 1948 7 MAY 11 1949 -12 NOV 17 1948 7 MAY 11 1949 -12 NOV 7 1952 -3 MAY 25 1953 2 NOV 7 1953 -3 **********************************		LATE	DEC	11		6.	90	MAY	16		4.4	3 .3
STATE/PROV: ONT LAT: \$2 14 N AREA: C.C MAX DEPTH: 0.0 LONG: 87 53 W (SQ KM) MEAN DEPTH: 0.0 (METERS) FREEZE/THAW HISTORY NUMBER OF ENTRIES: 23 FREEZE/THAW DATE NOV 17 1548 7 MAY 11 1949 10 1950 11 NOV 1 1549 11 MAY 25 1953 21 MAY 25 1953 22 MAY 25 1953 23 MAY 27 1955 15 MOV 14 1555 4 JUN 7 1956 15												
LONG: 87 53 W (SQ KM) MEAN DEPTH: 0.0 (METERS) FREEZE/THAW HISTORY NUMBER OF ENTRIES: 23 FREEZE CATE DEVIATION THAW DATE DEVIATION NOV 17 1948 7 MAY 11 1949 -12 NOV 1 1949 -9 JUN 2 1950 1C NOV 7 1952 -3 MAY 25 1953 2 NOV 7 1953 -3 **********************************	100 •	STATE/PROV:	ING								· - · ·	
FREEZE CATE DEVIATION THAW DATE DEVIATION NOV 17 1948 7 MAY 11 1949 -12 NOV 1 1949 -9 JUN 2 1950 1C NOV 7 1952 -3 MAY 25 1953 2 NOV 7 1953 -3 **********************************								Tel: O.	0			
NOV 17 1548 7 MAY 11 1949 -12 NOV 1 1549 -9 JUN 2 1950 1C NOV 7 1552 -3 MAY 25 1953 2 NOV 7 1553 -3 *********** **********************		FREEZE/THAW	нізто	IR Y		NUM8E	R OF ENTR	12S: 2	3	· 	•	
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		FREEZE ()A TE -1 958	DEVIATION 12	THAW DATE MAY 26 - 1959	DEVIATIO
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·		NOV 11	1960 1961		MAY 27 1961 MAY 24 1962	4
		NOV 8	1962	- 2	MAY 23 1963	ò
		NOV 26 NOV 19	1963 1964	16	MAY 14 _ 1964 MAY 20 1965	- 9
		NOV 7	1965	- 3	MAY 27 1966	+3 4
		NOV 2 NOV 7	-1956 1967	-8	JUN 4 -1967 MAY 19 1968	
	· · · · · · · · · · · · · · · · · · ·	NOV 12	1968	Ž	MAY 17 1969	-4 -6
		NOV 22	1969 1970	-17 12	MAY 25 1970 MAY 19 1971	
		NOV 8 OCT 28	1571	- 2	MAY 22 1972	-4 -1
	TOTAL	22	1972	-13	*********	
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	NAME OF LAK STATE/PROV:	ONT			030134	
·	LONG: 90 1	7NAR 2 W	E A :	O. C MAX DEPT	F:0.0	
	FREEZE/THAW	uletory			(METERS)	
	T NECZET I NAW	————		NUMBER OF ENTRI	IES: 3	
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) 2 • • • •	NAME OF LAKE	E: RED	······································	to coos:	050164	
		ONT	-			
	STATE/PROV: Lat: 51 4		- Д :	∩ . Λ		
t		N AR	EA:, (S	0.0 MAX DEPTH	: 0.0 H: 0.0	
t	_AT: 51 4	N ARE	(S	O - O MAX DEPTH	: 0.0 H: 0.0 (METERS)	··
t	_AT: 51 4	N ARE	(S	NUMBER OF ENTRI	H: 0.0 (METERS)	
t	_AT: 51 4	N ARE	(S	NUMBER OF ENTRI	H: 0.0 (METERS) ES: 13	
L	_AT: 51 4	HISTORY FREEZE DA	(S	TAEC WASH	H: 0.0 (METERS) Es: (\$	
L	_AT: 51 4	HISTORY FREEZE DA NOV 16 NOV 27	(S	NUMBER OF ENTRI	THAW DATE MAY 5 1957 MAY 4 1958	DEVIATION -4 -5
t	_AT: 51 4	HISTORY FREEZE DA NOV 16 NOV 27 NOV 27 NOV 27	TE 956 956 958 959	O KM) MEAN DEPT NUMBER OF ENTRI DEVIATION -6	H: 0.0 (METERS) ES: 13 THAW DATE MAY 5 1957 MAY 6 1958 MAY 12 1959	- ₽,
L	_AT: 51 4	FREEZE DA NOV 16 NOV 27 NOV 26 NOV 27 NOV 27 **********	TE (956 957 .958 .959 ***	Q KM) MEAN DEPT NUMBER OF ENTRI DEVIATION -6 5 5 5	THAW DATE MAY 5 1957 MAY 4 1958 MAY 12 1959 ************* MAY 10 1963	-4 -5
t	_AT: 51 4	FREEZE DA NOV 16 NOV 27 NOV 27 NOV 27 ************************************	TE \$556 \$556 \$558 \$559 *** \$64	O KM) MEAN DEPT NUMBER OF ENTRI DEVIATION -6 5 4	H: 0.0 (METERS) ES: [4] THAW DATE MAY 5 1957 MAY 4 1958 MAY 12 1959 ***********************************	-4 -5 3
L	_AT: 51 4	FREEZE DA NOV 16 NOV 27 NOV 27 NOV 27 NOV 27 ************************************	TE (956 (957 (958 (959 (*** (964 (966)	Q KM) MEAN DEPT NUMBER OF ENTRI DEVIATION -6 5 5 -13 8 -13	THAW DATE MAY 5 1957 MAY 4 1958 MAY 12 1959 *********** MAY 10 1963 MAY 17 1965 MAY 23 1967	-4 -5 3
t	_AT: 51 4	FREEZE DA NOV 16 NOV 27 NOV 26 NOV 27 NOV 26 NOV 27 NOV 26 NOV 27 NOV 30 NOV 30 NOV 9 NOV 9 NOV 27 NOV 30 NOV 3	TE 955 957 958 959 959 964 966 967	O KM) MEAN DEPT NUMBER OF ENTRI DEVIATION	H: 0.0 (METERS) ES: (\$ THAW DATE MAY 5 1957 MAY 4 1958 MAY 12 1959 ***********************************	-4 -5 3 1 -3 -4
t	_AT: 51 4	FREEZE DA NOV 16 NOV 27 NOV 27 NOV 27 ************************************	TE \$556 .556 .558 .559 *** \$64 966 966 966	O KM) MEAN DEPT NUMBER OF ENTRI DEVIATION -6 5 4 5 -13 8 -13	H: 0.0 (METERS) ES: 14 THAW DATE MAY 5 1957 MAY 4 1958 MAY 12 1959 ***********************************	-4 -5 3 1 -3 8 14 -9
t	_AT: 51 4	FREEZE DA NOV 16 NOV 27 NOV 27 NOV 27 ******** DEC 5 NOV 30 NOV 9 NOV 15 ******** NOV 20 NOV 23	TE 955 957 958 959 959 964 966 967	Q KM) MEAN DEPT NUMBER OF ENTRI DEVIATION -6 5 5 -13 -7 -2 1	H: 0.0 (METERS) ES: 15 THAW DATE MAY 5 1957 MAY 4 1958 MAY 12 1959 ***********************************	-4 -5 3 1 -3 6 14 -9 6 -3
t	AT: 51 4	FREEZE DA NOV 16 NOV 27 NOV 26 NOV 27 NOV 26 NOV 27 NOV 30 NOV 9 NOV 9 NOV 9 NOV 30 NOV 20	TE (\$55 (\$55 (\$55 (\$55 (\$59 (*** \$64 (\$66 (\$66 (\$67 (\$67 (\$69 (\$69 (\$70)	O KM) MEAN DEPT NUMBER OF ENTRI DEVIATION -6 5 4 5 -13 8 -13	H: 0.0 (METERS) ES: 14 THAW DATE MAY 5 1957 MAY 4 1958 MAY 12 1959 ***********************************	-4 -5 3 1 -3 8 14 -4 -9
<u>l</u>	TOTAL EARLY	FREEZE DA NOV 16 NOV 27 NOV 27 NOV 27 NOV 27 ************************************	TE (956 957 958 959 *** 966 967 *** 969 970	Q KM) MEAN DEPT NUMBER OF ENTRI DEVIATION -6 5 4 5 -13 -7 -2 1 1	H: 0.0 (METERS) ES: 15 THAW DATE MAY 5 1957 MAY 4 1958 MAY 12 1959 ***********************************	-4 -5 3 1 -3 6 14 -9 6 -3
<u>l</u>	TOTAL	FREEZE DA NOV 16 NOV 27 NOV 27 NOV 27 ************************************	TE (956 957 958 959 *** 966 967 *** 969 970	Q KM) MEAN DEPT NUMBER OF ENTRI DEVIATION -6 5 4 5 -13 -7 -2 1 1	H: 0.0 (METERS) ES: 14 THAW DATE MAY 5 1957 MAY 4 1958 MAY 12 1959 ***********************************	-5 3 1 -3 -4 -9 -3

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FR	FEZE.	/THAW	HIST	DRY	•	NUMB	R OF ENTR	IES: 2	7			
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				ZE D			VIATION	MAY	-22	1928		12
					1929		~1 3	MAY	6	1930 1931		-¢. -7
			DEC		<u>1930</u> 1931		12	MAY		1932		-1
			NOV	15	1932		-8			1933		- 3
				1-3 2	1.933- 1934		- 10			-1934 1935		-2
					1935		-8	MAY	12	1936		2
				15			-3	MAY	19	-1937 1947		-3 9
				***** 2		-	9	MAY	8	1957		-2
			NGV	24	1957		1	APR	28	1958		-12
				***** 30			7		11	1959 1960		5
					1560		7	MAY	14	1961		4
		•	NOV	27	1951		<u> </u>			1962 -1963		2
			DEC	2	1952 1963		9	MAY	6	1964		-4
				26	1964		3	MAY	9	1965		-1 11
	 _		NOV		1965 1965		-1 -11		21			7
				_28 <u></u>		<u> </u>	5	MAY	8	1968		2
			NOV	29	1963		. 6	MAY	2	1969 1970		-8 -3
					1969		-15 -6		<u>ģ</u>	1971-		<u>- ĭ</u> -
				16			-7	MAY	11	1972		1
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\$1 L/ L0	ME OF TELL	F LAKI PROV: 53 5	# # # # # # # # # # # # # # # # # # #	7 23 G TRO T AR URY EZE C ******	ATE * 1 9 4 9 1 9 4 9 4 4 * * * * * * * * * * * * * * *	O.C (SQ-KM) NUMB	ID CODE: MAX DEPT MEAN. DEP ER OF ENTH	YAM YAM YAM (050174 0 YETEM) YES: 2	0 0 0 RS) 5	ATE 1947 1948 1949	DE	V I AT 23 3
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	· · ·	NOV 20 19	63 5	JUN 5 1969	-4
		NOV 17 19	69 <u>2</u> 70 <u>9</u>	JUN 10 1970	
			71 2	MAY 30 1971 MAY 29 1972	-1 0
	****	NOV 6 19		JUN 6 1973	
	TOTAL EARLY	24 NDV 1	•	24 May 20	
	LATE	NOV-30		JUL1	
	MEAN	NOV 15	6.70	JUN 8	9.27
· -					
05.	NAME OF LAK STATE/PROV:	E: PICNIC	1D C03	: 050204	
	LAT: 48 3	6 N AREA	: 0.0 MAX DEF	PTF: 0.0	
	LONG:85-1	7	(-SQKM)MEAN-DE	EPTH: 0.0	
	ー アクマチンデンキャッカッ			TRIES: 15	
	, NEELLY TIIN	HISTORY	NUMBER UPTEN	18 125.	
		FREEZE DAT	F DEVIATION	THE DATE	 b Eutito
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			64 5	MAY 6 1965	Ó
		NOV 9 19 NOV519		MAY 16 1965	10
			66	MAY 7 1967 APR 30 1968	1
			63 -2	MAY 6 1969	-6 0
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				MAY 6	6.42
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06.	NAME OF LAKE	・ニオウロビビンスマー		.: 050214	
	NAME OF LAKE STATE/PROV:	ONT			
	STATE/PROV: LAT.:48 .30	ONT 5. NAREA	: 0.0 MAX D=P	TF: 0.0	-
	STATE/PROV: LAT.:48 .30	ONT 5. NAREA		TF: 0.0 PTH: 0.0 (METERS)	•
	STATE/PROV: LAT.:48 .30	ONT 5.NAREA 7 W	: 0.0 MAX D=P	PTH: 0.0 (METERS)	,
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	STATE/PROV: LAT: 48 36 LONG: 85 17	ONT S.NAREA 7 W HISTORY	O.O MAX DEP (SQ KM) MEAN DE NUMBER OF ENT	PTH: 0.0 (METERS) RIES: 15	DEVIATIO
	STATE/PROV: LAT: 48 36 LONG: 85 17	ONT S.NAREA 7 W HISTORY FREEZE DATE ************	O.O MAX DEP (SQ KM) MEAN DE NUMBER OF ENT DEVIATION	PTH: 0.0 (METERS) RIES: 15 THAW DATE MAY 10 1953	-2
	STATE/PROV: LAT: 48 36 LONG: 85 17	ONT AREA 7 W HISTORY FREEZE DATE ***********	O.O MAX DEP (SQ KM) MEAN DE NUMBER OF ENT DEVIATION	PTH: 0.0 (METERS) RIES: 15 THAW DATE MAY 10 1953 MAY 20 1954	- 2 8
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	STATE/PROV: LAT: 48 36 LONG: 85 17	ONT AREA ONT AREA N AREA HISTORY FREEZE DATE ***********************************	O.O MAX DEP (SQ KM) MEAN DE NUMBER OF ENT LEDEVIATION ** ** ** ** ** ** ** ** ** ** ** **	PTH: 0.0 (METERS) RIES: 15 THAW DATE MAY 10 1953 MAY 20 1954 APR 28 1955 MAY 17 1956 MAY 12 1963	-2 8 -14 5 0
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	STATE/PROV: LAT: 48 36 LONG: 85 17	ONT AREA N AREA HISTORY FREEZE DATE *********** ********** ********* ****	O.O MAX DEP (SQ KM) MEAN DE NUMBER OF ENT E DEVIATION	PTH: 0.0 (METERS) RIES: 15 THAW DATE MAY 10 1953 MAY 20 1954 APR-28 1955- MAY 17 1956 MAY 17 1956 MAY 12 1963 MAY 6 1964 MAY 10 1965 MAY 15 1966 MAY 16 1967 MAY 7 1968 MAY 1 1969-	-2 84 50 60 234 5 -1
	STATE/PROV: LAT: 48 36 LONG: 85 17	ONT AREA N AREA HISTORY FREEZE DATE ********** ********* ******** DEC 7 196 DEC 10 196 DEC 12 196 NOV 20 196 DEC 4 196 DEC 4 196 DEC 1 196	NUMBER OF ENT DEVIATION ** ** ** ** ** ** ** ** **	PTH: 0.0 (METERS) RIES: 15 THAW DATE MAY 10 1953 MAY 20 1954 APR-28 1955 MAY 17 1956 MAY 12 1963 MAY 10 1965 MAY 10 1965 MAY 15 1966 MAY 16 1967 MAY 7 1968 MAY 11 1969 MAY 15 1970	-14506234513
	STATE/PROV: LAT: 48 36 LONG: 85 17	ONT AREA N AREA HISTORY FREEZE DATE *********** ********** ********* ****	O.O MAX DEP (SQ KM) MEAN DE NUMBER OF ENT E DEVIATION DE	PTH: 0.0 (METERS) RIES: 15 THAW DATE MAY 10 1953 MAY 20 1954 APR-28 1955 MAY 17 1956 MAY 17 1956 MAY 10 1965 MAY 10 1965 MAY 10 1965 MAY 15 1966 MAY 16 1967 MAY 7 1968 MAY 11 1969 MAY 15 1970 MAY 14 1971	1865062345132
	STATE/PROV: LAT: 48.36 LONG: 85 17 FREEZE/THAW	ONT AREA N AREA HISTORY FREEZE DATE *********** ********** ********* ****	NUMBER OF ENT DEVIATION SQ KM MEAN DE NUMBER OF ENT SA	PTH: 0.0 (METERS) RIES: 15 THAW DATE MAY 10 1953 MAY 20 1954 APR-28 1955 MAY 17 1956 MAY 12 1963 MAY 10 1965 MAY 10 1965 MAY 15 1966 MAY 16 1967 MAY 7 1968 MAY 11 1969 MAY 15 1970	-14506234513
	STATE/PROV: LAT: .48 .3 LONG: a5 17 FREEZE/THAW	ONT AREA N AREA HISTORY FREEZE DATE *********** ********** DEC 7 196 DEC 10 196 DEC 12 196 NOV 20 196 DEC 4 196 NOV 29 196 DEC 6 197 DEC 6 197 DEC 6 197 NOV 29 197 NOV 29 197	NUMBER OF ENT DEVIATION SQ KM MEAN DE NUMBER OF ENT SA	PTH: 0.0 (METERS) RIES: 15 THAW DATE MAY 10 1953 MAY 20 1954 APR-28 1955 MAY 17 1956 MAY 12 1963 MAY 6 1964 MAY 10 1965 MAY 15 1966 MAY 15 1966 MAY 16 1967 MAY 17 1968 MAY 11 1969 MAY 15 1970 MAY 14 1971	-28450623451-32
	STATE/PROV: LAT: .48 .36 LONG: 85 17 FREEZE/THAW	ONT AREA N AREA HISTORY FREEZE DATE ************ ********** ******** ****	NUMBER OF ENT DEVIATION SQ KM MEAN DE NUMBER OF ENT SA	PTH: 0.0 (METERS) RIES: 15 THAW DATE MAY 10 1953 MAY 20 1954 APR 28 1955 MAY 17 1956 MAY 12 1963 MAY 10 1965 MAY 10 1965 MAY 10 1966 MAY 15 1966 MAY 15 1966 MAY 15 1968 MAY 11 1968 MAY 11 1968 MAY 15 1970 MAY 14 1971 MAY 14 1971 MAY 14 1972 ************************************	8 -16 -5 -6 -2 34 -5 -1 32
	STATE/PROV: LAT: .48 .3 LONG: a5 17 FREEZE/THAW	ONT AREA N AREA HISTORY FREEZE DATE *********** ********** DEC 7 196 DEC 10 196 DEC 12 196 NOV 20 196 DEC 4 196 NOV 29 196 DEC 6 197 DEC 6 197 DEC 6 197 NOV 29 197 NOV 29 197	NUMBER OF ENT DEVIATION SQ KM MEAN DE NUMBER OF ENT SA	PTH: 0.0 (METERS) RIES: 15 THAW DATE MAY 10 1953 MAY 20 1954 APR-28 1955 MAY 17 1956 MAY 12 1963 MAY 6 1964 MAY 10 1965 MAY 15 1966 MAY 15 1966 MAY 16 1967 MAY 17 1968 MAY 11 1969 MAY 15 1970 MAY 14 1971	- 2845062345132

107			I-D-C-DDE:060041	
	STATE/PROV: ILL			
	LAT: 41 10 N AREA:	13.47 (SQ KM)	MEAN DEPTH: 1.6	
			(METERS)	
	FREEZE/THAW HISTORY	NUMBE	R OF ENTRIES: 0	
108.	NAME OF LAKE: GOOSE STATE/PROV: ILL		ID CODE: 060051	
	LAT: 41 14 N AREA:	9.56		
	LONG: 89 23 W	(SQ KM)		
	FREEZE/THAW HISTORY	NUMBE	R OF ENTRIES: 0	
109.	NAME-OF-LAKE: PISTAKEE	en adastra - la remande en est como ene sen es en	10.0001:	
	STATE/PROV: ILL AREA:	6.28	MAX DEPTH: 0.0	
	LONG: 88 12 W	-(SQ-KM)	MEANTDEPTH: 3.3	
	FREEZE/THAW HISTORY	NUMBI	R OF ENTRIES: 0	4 .
110.	NAME OF LAKE: HORSESHOE STATE/PROV: ILL		ID CODE: 050071	
	LAT: 38 42 N AREA: LONG: 90 5 W	8.80 (SQ KM)	MAX DEPTH: 0.0 MEAN DEPTH: 2.1	
			(METERS)	-
	FREEZE/THAW HISTORY	BBMUN	R OF ENTRIES: 0	
• • • •	NAME OF LAKE CHALLTANOLA		ID_ CODE:0600.81	
1-1 4	STATE/PROV: ILL			
	LAT: 40 22 N AREA:	14.40 (SQ KM)	MEAN DEP TH: 1.2	
			(METERS)	
	FREEZE/THAW HISTORY	NUMBE	R OF ENTRIES: 0	
112.	NAME OF LAKE: SPRING, STATE/PROV: ILL		ID CODE: 060091	
	LAT: 42 2 N AREA:			
	LUNG: 90 8 W	(SQ KM)	MEAN DEPTH: 1.2 (METERS)	
	FREEZE/THAW HISTORY	NUMBE	R OF ENTRIES: 0	
			_ID_C00E:0601.01	
117	NAME OF LAKE, EDA		ر - بيستان داده مستخدم و الماحق الواقع الواقع المستخدم و دي الهالية بهاست دي هيستان	
113.	NAME OF LAKE: FOX STATE/PROV: ILL			
113.		6.77	MAX DEPTH: 0.0	
113.	STATE/PROV: ILL LAT: 42 25 N AREA:	6•77 (SQ KM)	MAX DEPTH: 0.0 MEAN DEPTH: 2.4 (METERS)	

		
114.		
•	SIATEXPROV: ILL	ID CODE: 050111
	LAT: 41 40 N AREA:	6.48 MAX DEPTH: 0.0
	20110: 07 35 W	(SQ KM) MEAN DEPTH: 0.0
	EDEE75 (TUNN)	(MEIERS)
_	FREEZE/THAW HISTORY	NUMBER OF ENTRIES: 0
1.4 =	NAME OF THE ORDER	
113.	NAME OF LAKE: CLEAR	ID CODE: 060141
	LAIT 40 25 N AREA:	5.93 MAX DEPT F: 0.0
	LONG: 89 57 W	(SQ KM) MEAN DEPTH: 1.2
		(METERS)
	FREEZE/THAW HISTORY	NUMBER OF ENTRIES: 0
		The second of th
115.	NAME OF LAKE: VERMILLION	10 C00E: 960151
	LAT: CO 11 N AREA:	0.0 MAX DEPTH: 0.0
		(SQ KM) MEAN DEPTH: 2.3 (METERS)
	FREEZE/THAW HISTORY	······································
	THE ELECTION HISTORY	NUMBER OF ENTRIES: 0
117.		ID CODE: 070021
	LAT: 41 24 N APEA.	11 5.4
	LAT: 41 24 N APEA: LONG: 65 42 W	11.51 MAX DEPTH: 23.0 (SQ KM) MEAN DEPTH: 6.7
		(METERS)
	FREEZE/THAW HISTORY	NUMBER OF ENTRIES: 0
		CATALOS U
118.	NAME OF LAKE: WINDNA	<u> </u>
	STATE/PROV: IND	10 CODE: 070031
	LAT: 41 13 N AREA:	2.13 MAX DEPTH: 24.1
	20144. 90 90 W	(SO KM) MEAN DEP TH: 9.1
	COCETE	(METERS)
	FREEZE/THAW HISTORY	NUMBER OF ENTRIES: 0
19.	NAME OF LAKE: CEDAR	ID C00E: 070051
	STATE/PROV: IND LAT: 41 22 N AREA:	
	LONG: 87 26 W	3.16 MAX DEPTH: 4.9 (SQ KM) MEAN DEPTH: 2.4
		(SQ KM) MEAN DEPTH: 2.4 (METERS)
	FREEZE/THAW HISTORY	
		NUMBER OF ENTRIES: 0
-00	NAME OF LAWS A TOTAL	•
200	NAME OF LAKE: SYRACUSE STATE/PROV: IND	10 COD 2: 070061 ,
	LAT: 41 25 N ADEA+	
	LONG: 85 44 W	1.68 MAX DEPTH: 10.4 (SQ KM) MEAN DEPTH: 4.0
		(METERS)
	FREEZE/THAW HISTORY	
		NUMBER OF ENTRIES: 0

21.	NAME UF LAKE: MA			ID CODE:	080051	
	STATE/PROV: IW		7 . BO	MAY DEPT.	: 11.2	
	LAT: 41 48 N LONG: 91 34 W	ARCAI	(SO KM)	MEAN DEPT	H: 1.5	
					(METERS)	
	FREEZE/THAW HIST	ORY	NUMBE	R OF ENTRE	ES: 0	
22.	STATE/PROV:I-W	Α		ID CODE:		
	LAT: 41 43 N LONG: 91 32 W	AREA:	19.85 (SQ KM)	MAX DEPTH MEAN DEPTH	: 9.1 H: 3.3	
	201101 98 02 11		(34 /////	TICAL DEL A	(METERS)	
	FREEZE/THAW HIST	ORY	NUMBE	R OF ENTRI	E s: 0	
23.	NAME OF LAKE: RE	o Rock		10 0008:	080071	
	STATE/PROV: IW	A			•	
	LAT: 41 22 N LONG: 92 59 W	AREAL	25.50 (50 KM)	MAX DEPTH	10.7 H: 2.4	
					(METERS)	
	FREEZE/THAW HIST	ORY	нимве	R OF ENTRI	ES: 0	
,						
24 .	STATE/PROV:IW					· ·
	LAT: 40 50 N LONG: 92 54 W	ARE A:	⇔⇔.60 (SQ KM)	MEAN DEP T	: 16.5 H: 5.9	
:					(METERS)	
· · · · · · · · · · · · · · · · · · ·	FREEZE/THAW HIST	ORY	NUMBE	R OF ENTRE	ES: 0	
25.	NAME OF LAKE: UN	ION		10 CODE:	090071	
•	STATE/PROV: MC	H AREA:	1.68	MAY DEDTE	: 0.c	
	LAT: 42 3 N LONG: 85 12 W	AREA.	1.88 (SQ KM)	HTHE KAM	1: 6.7	
					(METERS)	
	FREEZE/THAW HIST	ORY	МОМВЕ	R OF ENTRE		
		· · · · · · · · · · · · · · · · · · ·				
26.	NAME OF LAKE: BE			ib cope:		
	_STATE/PROV:MC _LAT: 44 48 N		0.47	HAX DEPTH	16.2	
	LONG: 84 37 W		(SQ KM)	MEAN DEP TO	H: 5.2 (Meters)	
	FREEZE/THAW HIST	ORY	нимве			-
	FRE	EZE DATE	DEV	/IATION	THAW DATE	DEVIATI
	DEC	18 1949		-3 -6	MAR 25 1950	19
		15 1950		-0	MAR 1 1951	

		FREEZE DA' 		/IATION	THAW C 		DEVIAT :
		EEC 20 19	552 553	-1	FEB 28 FEB 22	1953 19 54	-6 -12
	TOTAL EARLY	5 . DEC 15			FEB 22		
	LATE MEAN	DEC 30 DEC 21	5.	06	MAR 25 MAR 6		10.97
27.	STATE/PROV:	MCH		ID CODE: 09			
	LAT: 42 19 LONG: 84 15	N AREA		HEAD SEM	12.2 3.3 (METERS)		
	FREEZE/THAW-	HISTORY	NUMBE				
		FREEZE DAI	if DEV	/IATION	THAW D		DEVIATI
		CEC 18 19	49	-a ·10	MAR 25	1950 1951	1¢, -6
		DEC 20 19	51	-2	MAR 13	1952	2
		DEC 28 19			FEB 26	1953 1954	-13 -17
		DEC 16 19		-6 -7	MAR 10 MAR 16-	1955	5
		JAN 1 19	57	10	MAR 12	1957	1
	TOTAL	JAN 1 19	34	10	MAR 25	1958	14
	EARLY	DEC 12			FEB 22 MAR 25		
	MEAN	Dac 22	7.	00	MAR 11		10.09
28.	"STATEZPROV:	MCH AREA	1.30	ID CODE: 09 MAX DEPTH: MEAN DEPTH:	14.5		
28.	"STATEZPROV: LAT: 42 27	MCH AREA	1.30 (SQ_KM)	MAX DEPTH:	14.5 3.2 (METERS)		
28.	STATE/PROV: LAT: 42 27 LONG: 85 17	MCH N AREA W	: 1.30 (SQ_KM)	MAX DEPTH: MEAN DEPTH: (R OF ENTRIES:	14.5 3.2 METERS)	-	
28 •	STATE/PROV: LAT: 42 27 LONG: 85 17	MCH N AREA HISTORY FREEZE DAT DEC. 1719	.: 1.30 (SQ_KM) NUMBE E DEV	MAX DEPTH: MEAN DEPHH: (R OF ENTRIES:	14.5 3.2 METERS) 	1950	DEVIATI
28.	STATE/PROV: LAT: 42 27 LONG: 85 17	FREEZE DAT DEC 17 19	1.30 (SQ_KM) NUMBE DEV	MAX DEPTH: MEAN DEPHH: (R OF ENTRIES:	14.5 .3.2 .METERS) 		10 -10
28 •	STATE/PROV: LAT: 42 27 LONG: 85 17	FREEZE DAT DEC 17 19 DEC 20 19 JAN 1 19	1.30 (SQ_KM) NUMBE E DEV 49. 50 51	MAX DEPTH: MEAN DEPTH: (R OF ENTRIES: (IATION - 5 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	14.5 3.2 METERS) 9 THAW D MAR 26 MAR 22 MAR 22	1950 1951 1952 1953 -	10 -14 -6 -3
28 •	STATE/PROV: LAT: 42 27 LONG: 85 17	FREEZE DAT DEC 17 19 DEC 20 19 DEC 20 19 DEC 27 19 DEC 18 19	1.30 (SQ_KM) NUMBE NUMBE DEV 49 50 51 53 53	MAX DEPTH: MEAN DEPTH: (R OF ENTRIES: VIATION -5 -1 11 6 -3	14.5 .3.2 .METERS) 9 THAW D MAR 26 MAR 22 MAR 22 MAR 12 MAR 12	1950 1951 1952 1953 1954 1955	10 -14 -6 -3 -14 -4
28 •	STATE/PROV: LAT: 42 27 LONG: 85 17	FREEZE DAT DEC 17 19 DEC 16 19 DEC 20 19 DEC 27 19 DEC 27 19 DEC 18 19 DEC 8 19 DEC 8 19	E DEV 49. 50 51 53 54 55 57	MAX DEPTH: MEAN DEPTH: (R OF ENTRIES: (IATION	14.5 .3.2 METERS) 9 THAW D MAR 26 MAR 2 MAR 22 MAR 13 MAR 2	1950 1951 1952 1953 - 1954	10 -14 -6 -3 -14
28.	STATE/PROV: LAT: 42 27 LONG: 85 17	FREEZE DAT DEC 17 19 DEC 16 19 DEC 20 19 DEC 27 19 DEC 27 19 DEC 18 19 DEC 8 19 DEC 8 19	1.30 (SQ_KM) NUMBE E DEV 49. 50 51 53 53 54	MAX DEPTH: MEAN DEPTH: R OF ENTRIES: LATION	14.5 3.2 METERS) 9 THAW D MAR 2 MAR 22 MAR 22 MAR 13 MAR 2 MAR 31	1950 1951 1952 1953 1954 1955 1956	10 -10 -3 -10 -0 15
23.	STATE/PROV: LAT: 42 27 LONG: 85 17 FREEZE/THAW TOTAL EARLY	FREEZE DAT DEC 17 19 DEC 16 19 DEC 20 19 JAN 1 19 DEC 18 19 DEC 8 19 JAN 2 19 DEC 14 19 DEC 14 19	E DEV 49. 50 51 53 54 55 57	MAX DEPTH: MEAN DEPTH: R OF ENTRIES: IATION	14.5 3.2 METERS; 9 THAW D MAR 20 MAR 22 MAR 13 MAR 13 MAR 13 MAR 13 MAR 26 MAR 20 MAR 20 MAR 20	1950 1951 1952 1953 1954 1955 1956 1957 1958	10 -14 -3 -14 -15 -3
28.	STATE/PROV: LAT: 42 27 LONG: 85 17 FREEZE/THAW	FREEZE DAT DEC 17 19 DEC 16 19 DEC 20 19 JAN 1 19 DEC 27 19 DEC 27 19 DEC 18 19 JEC 8 19 JAN 2 19 DEC 14 19	E DEV 49. 50 51 53 54 55 57	MAX DEPTH: MEAN DEPTH: (R OF ENTRIES: VIATION	THAW D MAR 26 MAR 22 MAR 13 MAR 22 MAR 13 MAR 13 MAR 13 MAR 13 MAR 13 MAR 16	1950 1951 1952 1953 1954 1955 1956 1957 1958	10 -14 -3 -14 -15 -3
	STATE/PROV: LAT: 42 27 LONG: E5 17 FREEZE/THAW TOTAL EARLY LATE MEAN	MCH N AREA W HISTORY FREEZE DAT DEC 17 - 19 DEC 16 19 DEC 20 19 JAN 1 - 19 DEC 27 19 DEC 18 19 JAN 2 19 DEC 14 19 9 DEC 14 19	E DEV 49. 50 51 53 54 55 57	MAX DEPTH: MEAN DEPTH: (R OF ENTRIES: VIATION	14.5 .3.2 METERS) 9 THAW D MAR 26 MAR 22 MAR 13 MAR 12 MAR 13 MAR 13 MAR 26 MAR 26 MAR 31 MAR 16	1950 1951 1952 1953 1954 1955 1956 1957 1958	10 -16 -6 -3 -16 -4 15 -3 10
	TOTAL EARLY LATE MEAN NAME_OF_LAKE STATE/PROV:	FREEZE DAT DEC 17. 19 DEC 16 19 DEC 20 19 JAN 1 19 DEC 27 19 DEC 27 19 DEC 18 19 DEC 8 19 JAN 2 19 DEC 14 19 DEC 21 DEC 21 DEC 21 DEC 21 DEC 31 DEC 31	1.30 (SQ_KM) NUMBE E DEV 49 50 51 53 55 57 57	MAX DEPTH: MEAN DEPTH: REAN DEPTH: R OF ENTRIES: IATION	14.5 .3.2 .METERS) 9 THAW D MAR 26 MAR 22 MAR 12 MAR 12 MAR 12 MAR 31 MAR 26 MAR 31 MAR 16	1950 1951 1952 1953 1954 1955 1956 1957 1958	10 -16 -6 -3 -16 -4 15 -3 10
	TOTAL EARLY LATE MEAN NAME_OF_LAKE	FREEZE DAT DEC 17. 19 DEC 16 19 DEC 20 19 JAN 1 19 DEC 18 19 DEC 20 JAN 2 19 DEC 18 19 DEC 21 DEC 21 MUSKE GON MCH N AREA	E DEV 49. 50 51 51 57 57 7.	MAX DEPTH: MEAN DEPTH: (R OF ENTRIES: (IATION	THAW D MAR 26 MAR 22 MAR 22 MAR 13 MAR 13 MAR 13 MAR 13 MAR 16 D211 21.4	1950 1951 1952 1953 1954 1955 1956 1957 1958	10 -16 -6 -3 -16 -4 15 -3 10
	TOTAL EARLY LATE MEAN NAME_OF_LAKE STATE/PROV: LAT: 43 14 LONG: 66 18	FREEZE DAT DEC 17. 19 DEC 16 19 DEC 20 19 JAN 1 19 DEC 27 19 DEC 27 19 DEC 18 19 DEC 8 19 JAN 2 19 DEC 14 19 DEC 21 DEC 21 DEC 21 WUSKE GON MCH N AREA	SQ KM) NUMBE E DEV 49. 50 51 53 54 55 57 57 57 70	MAX DEPTH: MEAN DEPTH: (R OF ENTRIES: (IATION	THAW D MAR 26 MAR 22 MAR 13 MAR 13 MAR 13 MAR 13 MAR 16 D211 21.4 METERS)	1950 1951 1952 1953 1954 1955 1956 1957 1958	10 -16 -6 -3 -16 -4 15 -3 10
	TOTAL EARLY LATE MEAN NAME_OF_LAKE STATE/PROV: LAT: 43 14 LONG: 66 18	FREEZE DAT DEC 17. 19 DEC 16 19 DEC 20 19 JAN 1 19 DEC 27 19 DEC 27 19 DEC 18 19 DEC 8 19 JAN 2 19 DEC 14 19 DEC 21 DEC 21 DEC 21 WUSKE GON MCH N AREA	SQ KM) NUMBE E DEV 49. 50 51 53 54 55 57 57 57 70	MAX DEPTH: MEAN DEPTH: (R OF ENTRIES: VIATION	THAW D MAR 26 MAR 22 MAR 13 MAR 13 MAR 13 MAR 13 MAR 16 D211 21.4 METERS)	1950 1951 1952 1953 1954 1955 1956 1957 1958	10 -16 -6 -3 -16 -4 15 -3 10
	TOTAL EARLY LATE MEAN NAME_OF_LAKE STATE/PROV: LAT: 43 14 LONG: 66 18	FREEZE DAT DEC 17. 19 DEC 16 19 DEC 20 19 JAN 1 19 DEC 27 19 DEC 27 19 DEC 18 19 DEC 8 19 JAN 2 19 DEC 14 19 DEC 21 DEC 21 DEC 21 WUSKE GON MCH N AREA	SQ KM) NUMBE E DEV 49. 50 51 53 54 55 57 57 57 70	MAX DEPTH: MEAN DEPTH: (R OF ENTRIES: VIATION	THAW D MAR 26 MAR 22 MAR 13 MAR 13 MAR 13 MAR 13 MAR 16 D211 21.4 METERS)	1950 1951 1952 1953 1954 1955 1956 1957 1958	10 -16 -6 -3 -16 -4 15 -3 10

I -30 	NAME-DI	LAKE: EIG	STONE		-:-ECOO -GI	100031		
	STATE/	PROV: MIN 45 19 N	AREA:	50.25	MAX DEPTH:	0.0	,	
		96 27 W	ALCA.	(SO KM)				
				•		(METERS)		
	EDCE 75	THAW HISTOR		NUMBE	R OF ENTRIE	S: 0		
	INCLEC	/	· •	., .		•		
		E . 4.754 51155			ID CODE:	100001		
131.		F LAKE: BUFF Prov: <u>min</u>			ID CODE.	100041		
	LAT:	45 10 N	AREA:	6.12	MAX DEPT HE	9.1		
	LONG:	93 54 W		(SQ KM)	MEAN DEP TH	: 0.0 _{MFTERS}.		
	<u></u>						,	
	FREEZE.	ZTHAW HISTOR	RY	NUMBE	R OF ENTRIE	s: 0		
	•			-				
1-32	NAME-0	FLAKE: SHA	5A-WA		ID_CODE:	100051	··	-
	STATE	PROV: MIN						
	LAT:	47 55 N 91 54 W	AKEA.	(-\$Q-KM)	HTGEC KAM	: 6.7		
		. • • •		<u> </u>		(METERS)	•	
	EOFETE	ZTHAW HISTOR	· · · · · · · · · · · · · · · · · · ·	NUMBE	R OF ENTRIE	S: 0	· · · · · · · · · · · · · · · · · · ·	
	FREEZE	COMM DISTOR	•	HONDL		-		
· · · · · · · · · · · · · · · · · · ·							and a second and and and and and and and and and a	
					ID CODE:	110071		
133.	NAME O	F LAKE: HAGE Prov: NEB			ID CODE:			
	LAT:	42 20 N	AREA:	1.26	MAX DEPTH:	1.5		
	LONG:	99 44 W		(SQ KM)	MEAN DEP 1H	1: 0.9		
				·				
	FREEZE	ZTHAW HISTOR	RY	BMUM	ER OF ENTRIE	s: 0		
134				-,,	: 3000, CODE:	110041		
-	STATE/	PROV: NEB			MAX DEPTH:			
		42 23 N 1 30 8 W	AREA:	1.86 (SQ KM)				
				• = =		(METERS)		
	FREEZE	ATHAW HISTOR	₹ Y	NUMBI	R OF ENTRIS	š:		
	· NELEL	, , ,,,,,, ,,,,,,,,,,,,,,,,,,,,,,,,,,,	• •			· = · · · · ·		
								
								
•	NI 4 54 E . C	E (A)/E = 11.2 · ·	ΛW		ib coos:	110051		
135.		F LAKE: WILL PROV: NEB						
	LAT:	42 14 N	AREA:	1.27	MAX DEPT F:	2.2		
	LONG:	100 S W		(SO KM)	MEAN DEP TH	1: 1.4 (METERS)		
								-
	FREEZE	/THAW HISTOR	3 Y	NUMB	ER OF ENTRIE	:s: 0	· · · · · · · · · · · · · · · · · · ·	
136.	_NAME_D	F_LAKE: BIG	ALKALI_		:acana:	110091		
	STATE/	PROV: NEB						
		42 38 N 100 37 W	AREA:	3.41 (SQ KM)	HTGECHASM	3.U 1.5		
	LU.101			'**''		(METERS)		
				k				
		THAW HISTOR) V		ER OF ENTRIE	S: 0		

	•		•	
37.	NAME OF LAKE: DADS		ID CODE: 113111	
	STATE/PROV: NEB LAT: 42 30 N AREA:	4.15	MAX DEPT #: 3.4	
	LONG: 100 40 W	(SO KM)	MEAN DEPIH: 1.7	
			(METERS)	
	FREEZE/THAW HISTORY	NUMBE	R OF ENTRIES: 0	
				. —
138.	NAME OF LAKE: MARSH		ID CODE: 110151	
	STATE/PROV:NEB	9.31	MAX DEPTH: 2.4	·
	LONG: 100 30 W	(SOKM)	MEAN DEP TH: 1.2	
	,	· -	(METERS)	-
	FREEZE/THAW HISTORY	NUMBE	R OF ENTRIES: 0	
				-
139.	NAME OF LAKE: PELICAN			
	STATE/PROV: NEB		, , , , , , , , , , , , , , , , , , ,	
	LAT: 42 32 N AREA:	3.32 (SQ KM)	MAX DEPTH: \2.3 MEAN DEPTH: 1.3	
	CONG. 200 59 "	(Su Kini	(METERS)	
	FREEZE/THAW HISTORY	NUMBE	R OF ENTRIES: 0	
	FREEZEZ II AN III STORT	NONDE	N OF ENTITION	
140.	NAME OF LAKE: RED DEER		ID CODE: 110201	
	STATE/PROV: NES			
	LAT: 62 34 N AREA: LONG: 100 29 W	1.34 (SQ KM)	MAX DEFTH: 1.0 MEAN DEPTH: 1.2	
	201101 200 20 11	100	(METERS)	
	FREEZE/THAW HISTORY	NUMBE	R OF ENTRIES: 0	
	ت بنا به ۱۰ تا تا بنا حد الله الله الله الله الله الله الله الل			
141.	NAME OF LAKE: SWAN		<u>ID C33≘: 11-3211</u>	
	STATE/PROV: NEB			
	LAT: 42 14 N AREA:	1.43 (SQ KM)	MAX DEPTH: 2.1 TMEAN DEPTH: 1.2	
	LONG: 100 AC #	(50 KH)	(METERS)	
	EDEE75/TEAW HISTORY	MIMBE	R OF ENTRIES: 0	
	FREEZE/THAW HISTORY	NOMUZ	R OF LIVER 123+ 3	
				· · · · · · · · · · · · · · · · · · ·
1.62.	NAME OF LAKE: TROUT STATE/PROV: NEB		ID CODE: 119221	
176	STATEZPROV: NEB			
	LAT: A2 35 N AREA:	2.14	MAX DEPTH: 2.0 MEAN DEPTH: 1.2	
	LONG: 100 37 W	(SU KM)	MEAN DEP IN: 1.2	
			, –	
	FREEZE/THAW HISTORY	NUMBE	R OF ENTRIES: 0	
	الله على الله الله الله الله الله الله الله ال			
143.	NAME OF LAKE: CRESCENT STATE/PROV: NEB			
•	SIMILALURA MED	3.98	MAX DEPTH: 1.5	
•	LAT: 41 42 N AREA:	~ ~ ~ ~		
	LAT: 41 62 N AREA:	(SQ KM)	MEAN DEP IN . U.S	
	LAT: 41 62 N AREA: LONG: 102 24 W FREEZE/THAW HISTORY	(SO KM)	(METERS)	,

STATE/PROV: NEB LAT: 41 47 N AREA: 1.47 MAX DEPT H: 1.7 LONG: 102 27 W (SQ KM) MEAN DEPTH: 1.0 (METERS) FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0					
LAT: 41.47 N AREA: 1.47 MAX DEPT: 1.7 MAX DE	44.			10 CODE: 110261	
LONG: 102 27 W (SO KM) MEAN DEPTH: 1.0 (NETERS) FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 45. NAME OF LAKE: ISLAND ID CODE: 110281 STATE/PROVI NEB AREA: 2.88 MAX DEPTH: 2.1 (METERS) FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 45. NAME OF LAKE: GEORGE ID CODE: 110291 STATE/PROVI NEB AREA: 1.53 MAX DEPTH: 1.6 (METERS) FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 45. NAME OF LAKE: SWAN ID CODE: 110291 STATE/PROVI NEB (SO KM) MEAN DEPTH: 1.6 (METERS) FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 47. NAME OF LAKE: SWAN ID CODE: 110311 STATE/PROVI NEB LAT: 41 43 M AREA: 1.52 MAX DEPTH: 1.5 (METERS) FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 47. NAME OF LAKE: SWAN ID CODE: 12021 STATE/PROVI NEB (SO KM) MEAN DEPTH: 1.5 (METERS) FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 48. NAME OF LAKE: ASHTABULA ID CODE: 12021 STATE/PROVI NEB (SO KM) MEAN DEPTH: 1.5 (METERS) FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 49. NAME OF LAKE: SPIRITWOOD ID CODE: 12021 STATE/PROVI NEB (SO KM) MEAN DEPTH: 1.5 (METERS) FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 49. NAME OF LAKE: SPIRITWOOD ID CODE: 12021 STATE/PROVI NEB (SO KM) MEAN DEPTH: 1.5 (METERS) FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 49. NAME OF LAKE: SPIRITWOOD ID CODE: 12021 STATE/PROVI NEB (SO KM) MEAN DEPTH: 1.5 (METERS) FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 50. NAME OF LAKE: SAKAKAWEA ID CODE: 12021 STATE/PROVI NEB (SO KM) MEAN DEPTH: 3.5 (METERS) FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0		STATE/PROV: NEB	1 - 47	MAX DEPT : 1.7	
### AFREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 #### OF LAKE: ISLAND ID CODE: 110281 STATE/PROV: MEB AREA: 2.88 MAX DEPTH: 2.1 LAT: 61 44 M AREA: 2.88 MAX DEPTH: 2.1 (METERS) FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 #### OF LAKE: GEORGE ID CODE: 110291 LAT: 415 M AREA: 1.53 MAX DEPTH: 1.8 LONG: 101 50 W (SG KM) MEAN DEPTH: 1.8 LONG: 101 50 W (METERS) FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 #### OF LAKE: SWAN ID CODE: 110311 STATE/PROV: MED AREA: 1.52 MAX DEPTH: 1.8 LONG: 102 30 W AREA: 1.52 MAX DEPTH: 1.8 LONG: 102 30 W AREA: 1.52 MAX DEPTH: 1.5 LONG: 102 30 W AREA: 3.61 MAX DEPTH: 1.5 CONG: 98 30 W (SO KM) MEAN DEPTH: 1.5 FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 ###################################			(SO KM)	MEAN DEPTH: 1.0	
45. NAME OF LAKE: ISLAND ID CODE: 110281 STATE/PROV: NEB (SO KM) MEAN DEPTH: 2.1 LAT: 81 84 N AREA: 2.88 MAX DEPTH: 1.1 FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 45. NAME OF LAKE: GEORGE 10 CODE: 110291 STATE/PROV: NEB AREA: 1.53 MAX DEPTH: 1.6 LONG: 101 50 W (SO KM) MEAN DEPTH: 1.6 LONG: 101 50 W (SO KM) MEAN DEPTH: 1.6 47. NAME OF LAKE: SWAN ID CODE: 110311 STATE/PROV: NEB AREA: 1.52 MAX DEPTH: 1.0 LONG: 102 30 W (SO KM) MEAN DEPTH: 1.2 FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 47. NAME OF LAKE: SWAN ID CODE: 110311 STATE/PROV: NEB AREA: 1.52 MAX DEPTH: 1.0 LONG: 102 30 W (SO KM) MEAN DEPTH: 1.2 CR. NAME OF LAKE: ASHTABULA 1D CODE: 120011 STATE/PROV: NDA AREA: 3.61 MAX DEPTH: 1.5.3 LONG: 98 0W (SO KM) MEAN DEPTH: 1.5.3 LONG: 98 50 W AREA: (SO KM) MEAN DEPTH: 1.5.3 LONG: 98 50 W AREA: (SO KM) MEAN DEPTH: 1.5.5 FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 49. NAME OF LAKE: SPIRITWOD ID CODE: 120021 STATE/PROV: NDA AREA: 2.65 MAX DEPTH: 1.6.5 LONG: 98 50 W AREA: 2.65 MAX DEPTH: 1.6.5 LONG: 98 50 W AREA: 2.65 MAX DEPTH: 1.6.5 LONG: 98 50 W AREA: 2.65 MAX DEPTH: 1.6.5 FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 49. NAME OF LAKE: SPIRITWOD ID CODE: 120021 STATE/PROV: NDA AREA: 2.65 MAX DEPTH: 1.6.5 LONG: 98 50 W AREA: 1326.00 MAX DEPTH: 3.2.2 LONG: 98 50 W AREA: 1326.00 MAX DEPTH: 3.2.2 LONG: 101 25 W (SO KM) MEAN DEPTH: 3.2.2 LONG: 101 25 W (SO KM) MEAN DEPTH: 3.2.2 LONG: 101 25 W (SO KM) MEAN DEPTH: 3.2.2 LONG: 101 25 W (SO KM) MEAN DEPTH: 3.2.2 LONG: 101 25 W (SO KM) MEAN DEPTH: 3.2.2 LONG: 101 25 W (SO KM) MEAN DEPTH: 3.2.2 LONG: 101 25 W (SO KM) MEAN DEPTH: 3.2.2 LONG: 101 25 W (SO KM) MEAN DEPTH: 3.2.2 LONG: 101 25 W (SO KM) MEAN DEPTH: 3.2.2 LONG: 101 25 W (SO KM) MEAN DEPTH: 3.2.2 LONG: 101 25 W (SO KM) MEAN DEPTH: 3.2.2 LONG: 101 25 W (SO KM) MEAN DEPTH: 3.2.2 LONG: 101 25 W (SO KM) MEAN DEPTH: 3.2.2 LONG: 101 25 W (SO KM) MEAN DEPTH: 3.2.2 LONG: 101 25 W (SO KM) MEAN DEPTH: 3.2.2 LONG: 101 25 W (SO KM) MEAN DEPTH: 3.2.2 LONG: 101 25 W (SO KM) MEAN DEPTH: 3.2.2 LONG:		EDEEZEZTEAW HISTORY	NUMBE		
STATE/PROV: NEB		PREEZENTEAN MISTORY			
STATE/PROV: NEB					
LATI: 61 44 N AREA: 2.88 MAX DEPTH: 2.1 LONG: 102 24 W (50 KM) MEAN DEPTH: 1.1 FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 45. NAME OF LAKE: GEORGE 10 CODE: 110291 STATE/PROV: NEB AREA: 1.53 MAX DEPTH: 1.8 LONG: 101 50 W (50 KM) MEAN DEPTH: 1.1 CONG: 101 50 W (50 KM) MEAN DEPTH: 1.1 STATE/ABROV: NEB AREA: 1.52 MAX DEPTH: 1.8 LONG: 102 30 W (50 KM) MEAN DEPTH: 1.2 LONG: 102 30 W (50 KM) MEAN DEPTH: 1.2 FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 47. NAME OF LAKE: SWAN 1D CODE: 110311 STATE/ABROV: NEB (50 KM) MEAN DEPTH: 1.2 LONG: 102 30 W (50 KM) MEAN DEPTH: 1.2 COMETERS) FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 48. NAME OF LAKE: ASHTABULA 1D CODE: 120011 STATE/PROV: NEB AREA: 3.61 MAX DEPTH: 3.0 LONG: 98 0 W (50 KM) MEAN DEPTH: 3.0 LONG: 98 0 W (50 KM) MEAN DEPTH: 1.7 FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 49. NAME OF LAKE: SPIRITWOOD ID CODE: 120021 STATE/PROV: NEB AREA: 2.65 MAX DEPTH: 1.7.9 LONG: 68 50 W (50 KM) MEAN DEPTH: 1.7.9 FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 49. NAME OF LAKE: SPIRITWOOD ID CODE: 120021 STATE/PROV: NEB AREA: 2.65 MAX DEPTH: 1.7.9 LONG: 68 50 W (SO KM) MEAN DEPTH: 1.7.9 FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0	45.			ID CODE: 110281	
######################################		LAT: 41 44 N AREA:	2.88		
### UP LAXE: GEORGE	•			(METERS)	
STATE/PROV: NEB LAT: 41 59 N AREA: 1.53 MAX DEPTH: 1.8 LONG: 101 50 W (SQ KM) MEAN DEP H: 1.1 (METERS) FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 47. NAME OF LAKE: SWAN ID CODE: 110311 SIALE/PROV: NEB LAT: 41 43 N AREA: 1.52 MAX DEPTH: 1.8 LDNG: 102 30 W (SQ KM) MEAN DEPTH: 1.8 FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 48. NAME OF LAKE: ASHTABULA 10 CODE: 12001) STATE/PROV: NDA AREA: 3.61 MAX DEPTH: 15.3 LDNG: 98 0 W (SQ KM) MEAN DEPTH: 15.3 LDNG: 98 0 W (SQ KM) MEAN DEPTH: 17.9 FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 49. NAME OF LAKE: SPIRITWOOD ID CODE: 120021 STATE/PROV: NDA AREA: 2.85 MAX DEPTH: 1.5 LAT: 47 11 N AREA: 2.85 MAX DEPTH: 7.9 FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 49. NAME OF LAKE: SPIRITWOOD ID CODE: 120021 STATE/PROV: NDA AREA: 2.85 MAX DEPTH: 7.9 FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 50. NAME OF LAKE: SAKAKAWEA 10 CODE: 120031 STATE/PROV: NDA AREA: 1326.00 MAX DEPTH: 18.5 CONE: 101 25 W (METERS) MEAN DEPTH: 18.5 MEAN		FREEZE/THAW HISTORY	NUMBE	R OF ENTRIES: 0	t.
STATE/PROV: NEB AREA: 1.53 MAX DEPTH: 1.8 LONG: 101 SO W (SO KM) MEAN DEPTH: 1.1 (METERS) FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 47. NAME OF LAKE: SWAN ID CODE: 110311 STATE/PROV: NEB LAT: 41 3 N AREA: 1.52 MAX DEPTH: 1.8 (METERS) FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 48. NAME OF LAKE: ASHTABULA 10 CODE: 12001) STATE/PROV: NCA LAT: 47 10 N AREA: 3.61 MAX DEPTH: 15.3 (METERS) FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 49. NAME OF LAKE: SPIRITWOOD ID CODE: 120021 STATE/PROV: NCA LAT: 47 11 N AREA: 2.85 MAX DEPTH: 14.5 (METERS) FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 49. NAME OF LAKE: SPIRITWOOD ID CODE: 120021 STATE/PROV: NCA LAT: 47 11 N AREA: 2.85 MAX DEPTH: 14.5 (METERS) FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 49. NAME OF LAKE: SAKAKAWEA (SO KM) MEAN DEPTH: 7.9 (METERS) FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 50. NAME-OF-LAKE: SAKAKAWEA 10 CODE: 120031 STATE/PROV: NCA LAT: 47 35 N AREA: 1326.00 MAX DEPTH: 52.2 (METERS) LONG: 101 25 W (SO KM) MEAN DEPTH: 18.0 (METERS)	····				
### FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 ###################################	45 •	STATE/PROV: NEB			
### FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 ###################################				MAX DEPTH: 1.8	
47. NAME OF LAKE: SWAN STATE/PROV: NEB LAT: 41 43 N AREA: 1:52 MAX DEPTH: 1:9 LONG: 102 30 W AREA: (SQ KM) MEAN DEPTH: 1:2 FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 48. NAME OF LAKE: ASHTABULA STATE/PROV: NDA LAT: 47 10 N AREA: 3.61 MAX DEPTH: 15.3 LONG: 98 0 W (SQ KM) MEAN DEPTH: 4.0 FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 49. NAME OF LAKE: SPIRITWOOD STATE/PROV: NDA LAT: 47 11 N AREA: 2.65 MAX DEPTH: 14.5 LONG: 98 50 W (SQ KM) MEAN DEPTH: 15.9 FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 49. NAME OF LAKE: SPIRITWOOD LAT: 47 11 N AREA: 2.65 MAX DEPTH: 14.5 LONG: 98 50 W (SQ KM) MEAN DEPTH: 15.9 FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 50. NAME OF LAKE: SAKAKAWEA LONG: 10 C 20 : 120031 STATE/PROV: NDA STATE/PROV: NDA STATE/PROV: NDA STATE/PROV: NDA LAT: 47 35 N AREA: 1326.00 MAX DEPTH: 52.2 LONG: 101 25 W (METERS)		TOGETTE (TIME INTETEDRY	NEIMDE		
STATEZPROV: NED LAT: 41 63 N AREA: 1.52 MAX DEPTH: 1.6 LONG: 102 30 W (SQ KM) MEAN DEPTH: 1.2 FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 48. NAME OF LAKE: ASHTABULA 10 CODE: 12001) STATE/PROV: NDA LAT: 47 10 N AREA: 3.61 MAX DEPTH: 15.3 LONG: 98 0 W (SQ KM) MEAN DEPTH: 4.0 (METERS) FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 49. NAME OF LAKE: SPIRITWOOD ID CODE: 120021 STATE/PROV: NDA LAT: 47 11 N AREA: 2.85 MAX DEPTH: 1.5.5 LONG: 98 0 W (SQ KM) MEAN DEPTH: 1.5.5 FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 49. NAME OF LAKE: SPIRITWOOD ID CODE: 120021 STATE/PROV: NDA LAT: 47 11 N AREA: 2.85 MAX DEPTH: 1.6.5 CMETERS) FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 50. NAME OF LAKE: SAKAKAWEA 1D CODE: 120031 STATE/PROV: NDA LAT: 47 35 N AREA: 1326.00 MAX DEPTH: 52.2 LONG: 101 25 W (SQ KM) MEAN DEPTH: 52.2 LONG: 101 25 W (METERS)		PREEZEZIFAW HISTORY	- AOMBE		
STATEZPROV: NEB LAT: 41 63 N AREA: 1.52 MAX DEPTH: 1.9 LONG: 102 30 W (SQ KM) MEAN DEPTH: 1.2 FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 68. NAME OF LAKE: ASHTABULA 10 CODE: 120011 STATEZPROV: NCA LAT: 47 10 N AREA: 3.61 MAX DEPTH: 15.3 LONG: 98 0 W (SO KM) MEAN DEPTH: 4.0 (METERS) FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 49. NAME OF LAKE: SPIRITWOOD ID CODE: 120021 STATEZPROV: NCA LAT: 47 11 N AREA: 2.85 MAX DEPTH: 14.5 LONG: 98 50 W (SO KM) MEAN DEPTH: 7.9 LONG: 98 50 W (SO KM) MEAN DEPTH: 7.9 FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 50. NAME OF LAKE: SAKAKAWEA 10 CODE: 120031 STATEZPROV: NCA STATEZPROV: NCA LAT: 47 35 N AREA: 1326.00 MAX DEPTH: 52.2 LONG: 101 25 W (SO KM) MEAN DEPTH: 18.5 (METERS)					
LAT: 41 43 N AREA: 1:52 MAX DEPTH: 1:52 (METERS) FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 68. NAME OF LAKE: ASHTABULA STATE/PROV: NDA LAT: 47 10 N AREA: 3.61 MAX DEPTH: 15.3 LDNG: 98 0 W (SQ KM) MEAN DEP H: 4.00 (METERS) FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 49. NAME OF LAKE: SPIRITWOOD ID CODE: 120021 STATE/PROV: NDA LAT: 47 11 N AREA: 2.65 MAX DEPTH: 14.5 (METERS) FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 49. NAME OF LAKE: SPIRITWOOD ID CODE: 120021 STATE/PROV: NDA LAT: 47 11 N AREA: 2.65 MAX DEPTH: 14.5 (METERS) FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 50. NAME OF LAKE: SAKAKAWEA ID CODE: 120031 STATE/PROV: NDA LAT: 47 35 N AREA: 1326.00 MAX DEPTH: 32.2 (METERS) COOK NAME OF LAKE: SAKAKAWEA (SO KM) MEAN DEPTH: 32.2 (METERS)				ID CODE: 110311	
LONG: 102 30 W			1.52	MAX DEPTH: 1+8	
*** NAME OF LAKE: ASHTABULA		LONG: 102 30 W	(SQ KM)	MEAN DEP 1H: 1.2 METERS)	
STATE/PROV: NDA LAT: 47 10 N AREA: 3.61 MAX DEPTH: 15.3 LONG: 98 0 W (SO KM) MEAN DEPTH: 4.0 (METERS) FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 49. NAME OF LAKE: SPIRITWOOD ID CODE: 120021 STATE/PROV: NDA LAT: 47 11 N AREA: 2.85 MAX DEPTH: 14.5 LONG: 98 50 W (SO KM) MEAN DEPTH: 7.9 (METERS) FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 30. NAME OF LAKE: SAKAKAWEA ID CODE: 120031 STATE/PROV: NDA LAT: 47 35 N AREA: 1326.00 MAX DEPTH: 52.2 LONG: 101 25 W (SO KM) MEAN DEPTH: 52.2 LONG: 101 25 W (SO KM) MEAN DEPTH: 52.2 (METERS)		FREEZE/THAW HISTORY	NUMBE	R OF ENTRIES: 0	
STATE/PROV: NDA LAT: 47 10 N AREA: 3.61 MAX DEPTH: 15.3 LONG: 98 0 W (SQ KM) MEAN DEPTH: 4.0 (METERS) FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 49. NAME OF LAKE: SPIRITWOOD ID CODE: 120021 STATE/PROV: NDA LAT: 47 11 N AREA: 2.85 MAX DEPTH: 14.5 LONG: 98 50 W (SQ KM) MEAN DEPTH: 7.9 (METERS) FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 130. NAME OF LAKE: SAKAKAWEA ID CODE: 120031 STATE/PROV: NDA LAT: 47 35 N AREA: 1326.00 MAX DEPTH: 52.2 LONG: 101 25 W (SQ KM) MEAN DEPTH: 52.2 LONG: 101 25 W (SQ KM) MEAN DEPTH: 52.2 (METERS)					
LAT: 47 10 N AREA: 3.61 MAX DEPTH: 15.3 LONG: 98 0 W (SQ KM) MEAN DEPTH: 4.0 (METERS) FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 49. NAME OF LAKE: SPIRITWOOD ID CODE: 120021 STATE/PROV: NDA LAT: 47 11 N AREA: 2.85 MAX DEPTH: 14.5 LONG: 98 50 W (SQ KM) MEAN DEPTH: 7.9 FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 50. NAME OF LAKE: SAKAKAWEA ID CODE: 120031 STATE/PROV: NDA LAT: 47 35 N AREA: 1326.00 MAX DEPTH: 52.2 LONG: 101 25 W (SQ KM) MEAN DEPTH: 52.2 LONG: 101 25 W (SQ KM) MEAN DEPTH: 52.2 (METERS)	48.			10 CODE: 120011	
FREEZE/THAW HISTORY NUMBER OF ENTRIES: 49. NAME OF LAKE: SPIRITWOOD STATE/PROV: NDA LAT: 47 11 N AREA: 2.85 MAX DEPTH: 14.5 LONG: 98 50 W (SQ KM) MEAN DEPTH: 7.9 (METERS) FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 10 COD: 120031 STATE/PROV: NDA LAT: 47 35 N AREA: 1326.00 MAX DEPTH: 52.2 LONG: 101 25 W (SQ KM) MEAN DEPTH: 52.2 LONG: 101 25 W (SQ KM) MEAN DEPTH: 52.2 (METERS)			3.61	MAX DEPTH: 15.3	
FREEZE/THAW HISTORY A9. NAME OF LAKE: SPIRITWOOD LAT: 47 11 N AREA: 2.85 MAX DEPTH: 14.5 LONG: 98 50 W (SQ KM) MEAN DEP H: 7.9 FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 SO. NAME OF LAKE: SAKAKAWEA STATE/PROV: NDA LAT: 47 35 N AREA: 1326.00 MAX DEPTH: 52.2 LONG: 101 25 W (SQ KM) MEAN DEP H: 18.0 (METERS)				MEAN DEP 1H: 4.0 (METERS)	
49. NAME OF LAKE: SPIRITWOOD STATE/PROV: NCA LAT: 47 11 N AREA: 2.85 MAX DEPTH: 14.5 LONG: 98 50 W (SQ KM) MEAN DEP H: 7.9 (METERS) FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 50. NAME OF LAKE: SAKAKAWEA ID CODE: 120031 STATE/PROV: NCA LAT: 47 35 N AREA: 1326.00 MAX DEPTH: 52.2 LONG: 101 25 W (SQ KM) MEAN DEP H: 18.0 (METERS)		FREEZE/THAW HISTORY	NUMBE		
49. NAME OF LAKE: SPIRITWOOD STATE/PROV: NCA LAT: 47 11 N AREA: 2.85 MAX DEPTH: 14.5 LONG: 98 50 W (SQ KM) MEAN DEP H: 7.9 (METERS) FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 50. NAME OF LAKE: SAKAKAWEA ID CODE: 120031 STATE/PROV: NCA LAT: 47 35 N AREA: 1326.00 MAX DEPTH: 52.2 LONG: 101 25 W (SQ KM) MEAN DEP H: 18.0 (METERS)		· · · · · · · · · · · · · · · · · · ·			•
STATE/PROV: NOA LAT: 47 11 N AREA: 2.85 MAX DEPTH: 13.5 LONG: 98 50 W (SQ KM) MEAN DEP H: 7.9 FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 50. NAME OF LAKE: SAKAKAWEA STATE/PROV: NOA LAT: 47 35 N AREA: 1326.00 MAX DEPTH: 52.2 LONG: 101 25 W (SQ KM) MEAN DEP H: 18.0 (METERS)		•			
LONG: 98 50 W (SO KM) MEAN DEPTH: 7.9 FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 SO. NAME OF LAKE: SAKAKAWEA ID CODE: 120031 STATE/PROV: NDA LAT: 47 35 N AREA: 1326.00 MAX DEPTH: 52.2 LONG: 101 25 W (SO KM) MEAN DEPTH: 18.0 (METERS)	49.	STATE/PROV: NDA			
FREEZE/THAW HISTORY NUMBER OF ENTRIES: 0 SO. NAME OF LAKE: SAKAKAWEA ID CODE: 120031 STATE/PROV: NDA LAT: 47 35 N AREA: 1326.00 MAX DEPTH: 52.2 LONG: 101 25 W (SQ KM) MEAN DEP H: 18.0 (METERS)		LAT: 47 11 N AREA: LONG: 98 50 W	(SQ KM)	MEAN DEP 1H: 7.9	
50. NAME OF LAKE: SAKAKAWEA ID CODE: 120031 STATE/PROV: NDA LAT: 47 35 N AREA: 1326.00 MAX DEPTH: 52.2 LONG: 101 25 W (SO KM) MEAN DEP H: 18.0 (METERS)		FREEZE/THAW HISTORY	NUMBE		
STATE/PROV: NOA LAT: 47 35 N AREA: 1326.00 MAX DEPTH: 52.2 LONG: 101 25 W (SU KM) MEAN DEPTH: 18.0 (METERS)				·	
STATE/PROV: NDA LAT: 47 35 N AREA: 1326.00 MAX DEPTH: 52.2 LONG: 101 25 W (SU KM) MEAN DEPTH: 18.0 (METERS)					
LAT: 47 35 N AREA: 1326.00 MAX DEPTH: 52.2 LONG: 101 25 W (SU KM) MEAN DEPTH: 18.0 (METERS)	50 .	STATE/PROV: NDA			
(METERS)		LAT: 47 35 N AREA: LONG: 101 25 W	1326.00 (SQ KM)	MAX DEPTH: 52.2 MEAN DEPTH: 18.0	
		-			

51%	NAME OF LAKET HEART BUTTE	10 C005: 120051
	STATE/DRIV! NOA	
	LONG: 101 50 W (SQ KM)	MAX DEPTH: 18.4 MEAN DEPTH: 6.2 (METERS)
	FREEZE/THAW HISTORY NUMBER	OF ENTRIES: 0
52.	NAME OF LAKE: JAMESTOWN STATE/PROV: NDA	1D CODE: 120061
	LAT: 46 56 N AREA: 8.51	MAX DEPTH: 13.4 MEAN DEPTH: 4.1
	LONG: 98 42 W (SQ KM)	(METERS)
	FREEZE/THAW HISTORY - NUMBER	R OF ENTRIES: 0
53 -	NAME OF LAKE: SIG STONE	-ro-coos:130011
	STATE/PROV: SDA	
	LONG: 96 28 W (SQ KM)	MEAN DIP 1H: 3.0 (METERS)
	FREEZE/THAN HISTORY NUMBER	R OF ENTRIES: 0
	PREEZE/THAN TITSTON	
		·
 . -	ALE SUPPLIES	th conf: 130021
54.	NAME OF LAKE: LAKE HERMAN _STATEZEROV:SDA	
	LAT: 44 0 N AREA: 5•47 Lung: 97 10 W (SQ KM)	MAX DEPTH: 2.6 MEAN DEPTH: 1.2
		(METERS)
	FREEZE/THAW HISTORY NUMBER	R OF ENTRIES: C
55	NAME OF LAKE: LAKE MAD ISON	10 CODE: 130031
	STATE/PROV: SCA LAT: 43 57 N AREA: 12.16 LONG: 97 0 W (SQ KM)	MAX DEPTH: 5.2
	LONG: 97 0 W (SQ KM)	(METERS)
	FREEZE/THAW HISTORY NUMBE	R OF ENTRIES: 0
_		
56 .		
	STATE/PRUV:SDA	MAX DEPTH: 5.5
	LONG: 97 12 W (SQ KM)	MEAN DEP IH: 3.7
	ALL MOC	
	FREEZE/THAW HISTORY NUMBE	N O CONTRACTOR OF THE CONTRACT
		10.00-1.1100.01
57-	NAME-OF-LAKE:-LAKE-POINSETT	
	LAT: 44 34 N AREA: 32.40	MAX DEPTH: 5.5
	LONG: 97 5 W (SO KM)	(METERS)

58.	NAME OF LAKE: LAKE ANDES	ID CODE: 130061
	STATE/PROV: SDA LAT: 43 9 N AREA: 18.62	MAX DEPT 1: 4.9
	LONG: 98 30 W (SQ KM)	MEAN DIR IN
		(METERS)
	FREEZE/THAW HISTORY NUMBE	ER OF ENTRIES: 0
159.	NAME OF LAKE: LAKE DAHE	ID CODE: 130071
	STATE/PROV: SDA AREA: 1317.00	MAX DEPTH: 58.8
	LONG: 100 30 W (SQ KM)	MEAN DEP 1H: 18.9 (METERS)
	AUIMPE	ER OF ENTRIES: 0
	FREEZE/THAW HISTORY NUMBE	ER OF ENJA 123.
60.	NAME OF LAKE: LAKE SHARPE STATE/PROV: SDA	
	LAT: 43 48 N AREA: 231.00	MAX DEPTH: 23.8
	LONG: 99 23 W (SQ KM)	MEAN DEPTH: 9.1 (METERS)
-, -, -	FREEZE/THAW HISTORY NUMBE	ER OF ENTRIES: 0
		10.60071. 170001
161.	NAME OF LAKE: FRANCIS CASESTATEZPROV:SDA	ID CODE: 130091
	LAT: 43 4 N AREA: 271+00	MAX DEPTH: 30,5 MEAN DEPTH: 12.2
-	LONG: 98 35 W (SQ KM)	(METERS)
w	FREEZE/THAW HISTORY NUMBER	ER OF ENTRIES: 0
		<u> </u>
102.	NAME OF LAKE: LEWIS & CLARK	
•	STATE/PROV: SDA LAT: 42 51 N AREA: 121.50	MAX DEPTH: 14.5
	LONG: 97 30 W (SQ KM)	MAX DEPTH: 14.5 MEAN DEP 1H: 3.7 (METERS)
	FREEZE/THAW HISTORY NUMBER	ER OF ENTRIES: 0
··- 		ID CODE: 130111
163.	NAME OF LAKE: SHADEHILL STATE/PROV: SDA	ID CODE: 130111
	LAT: 45 45 N AREA: 14.58 LDNG: 102 13 W (SQ KM)	MAX DEPTH: 13.3 MEAN DEPTH: 2.9
<u>.,</u>	TOTAL ATTION AND AND AND AND AND AND AND AND AND AN	ER OF ENTRIES: 0
	FREEZE/THAW HISTORY NUMBE	ER OF LIVIN 163.
	NAME OF LAKE: BEAVER DAM	10 COSE: 140013
104.	STATE/PROV: WIS	
	LAT: 43 30 N AREA: 26.75	MAX DEPTH: 2.1 MEAN DEPTH: 0.0
_	LONG: 88 52 W (SQ KM)	(METERS)

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	TOTAL	FREEZE (DEVIATION	THAW DATE APR 3 1958	DEVIATIO C
	EARLY	*****		·····	APR 3	
	LATE MEAN	*****		0.0	APR 3 APR 3	0.0
					AFR 3	
165.	NAME OF LAKE		VI TAE	10 C00 E	: 140023	
	STATE/PROV: LAT: 45 58 LONG: 89 39	B N A	REA:	4.32 MAX DEP (SQ KM) MEAN DE	PTH: 0.0	
	FREEZE√T⊭A₩-	-HISTORY		NUMBER-OF-ENT	(METERS)	
		Corre		25.4.4.7.2.4		
		FREEZE !		DEVIATION 7	THAW DATE APR 20 1959	DEVIATIO Ç
	TOTAL	NOV 16	1959	-7	*******	
-	EARLY	_NOV 16			APR 20	
	LATE Mean	NOV 30 NOV 23		7.00	APR 20 APR 20	0.0
166.	NAME OF LAKE STATE/PROV:			FGCO di	140043	-
	LAT:42_32	NAF	2E A.:	1.87MAX.DEP	TF: 5.2	
	LONG: 88 8		((SQ KM) MEAN DEI	PIH: 0.0 (METERS)	
	FREEZE/THAW	HISTORY		NUMBER OF ENTE	RIES: 2	
		FREEZE D)A TE	DEVIATION.		. DEVIATIO
		######## NOV 29		О	MAR 31 1950 APR 3 1959	-2 1
	TOTAL EARLY	NOV 29				
	LATE	NOV 29			MAR 31 APR 3	
	MEAN	NOV 29		0.0	APR 2	1.58
167.	NAME OF LAKE	: CHAIN-E	-LAKES	ID CODE	: 140053	
	STATE/PROV: LAT: 46 20		EA:	0.21 MAX DEPT	Γ ⊦: 1 6∙9	
	LONG: 89 10	N		SQ KM) MEAN DEF	PTH: 6.7 (METERS)	
	<u>EREEZEZTEAW</u>	HISTORY		NUMBER OF ENIA		
		FREEZE D		DEVIATION	THAW DATE	DEVIATIO
		NOV 29	1951 1952	-1 2	APR 19 1952 APR 8 1953	-
		DEC 17	1953 1954	15	APR 10 1954	- 5
		NOV 30	1955	-2	APR 21 1956	- 6 6
		NOA 50	1955 1957	÷3	APR 19 1957 APR 10 1959	44
		UEC 1		- 2		-2-
	TOTAL	NOV 30	1958	- 2	APR 20 1959	5
	TOTAL EARLY LATE	NOV 30	1558	- 2	APR 20 1959 APR 8 APR 21	5

	STATE/PROV: LAT: 43 25		AR	EA:	1.46	MAX DEPTE	13.1		
	LUNG: 89 44	W			(SO KM)	MEAN DEP TH	(METERS)		
	FREEZE/THAW	HISTO	RY		NUMBER	OF ENTRIE	S: 10		
		 							
		FREE		ATE 1541		ATION	THAW DA		DEVIATIO
		DEC	18	1946		1	APR 13 MAR 29		6 -9
)	DEC	25	1948		8	APR 4	1949	~3
			-4	1949 1950-		.3			 - 5
		****		****			APR 9	1955	
				1955		2	******** APR 15	1959	8
	TOTAL_				<u> </u>		MAR 29	**	-
	EAPLY LATE	DEC					APR 15		6.04
	MEAN	_ DE.C	1.7		9•{)6	APR - 7		
	NAME OF LAKE	• GEN				ID CODE:	140093		- ·
) Y •	STATE/PROV:	w IS							
	LAT: 42 34 LONG: 98 30		AK	- A •	21.30 (SQ KM)	MEAN DEPT	H: 19.7 _ (METERS)		
	FREEZE/THAW	ністо	IR Y		NUMBER	R OF ENTRI			
				ATE	·	TATION	THAW DA		DEVIATIO 2
		JAN DEC_	-	1863 1863		15		1864	ģ
		DEC DEC	8 16	1864		25 17	APR 2 APR 17	1965 1866	18
		DEC		1866		-6 -2	APR 18 MAR 25	1867 1868	1°5
		LCC		1853		22	MAR 16	1869	-14
		DEC						1870	13
		DEC DEC DEC	21	1859 1870	-	9	APR 12 MAR 20	1870 1871	13 -10
		DEC DEC DEC	21 24 9	1859 1870 1871		12 -9 24	APR 12 MAR 20 APR 15	1871	
	· · · · · · · · · · · · · · · · · · ·	DEC DEC DEC DEC DEC	21 24 9 4 21	1859 1870 1871 1872 1873		12 -9 24 29	APR 12 MAR 20 APR 15 APR 8 APR 12	1871 1872 1873 1874	-10 16 9 13
	·	DEC DEC DEC DEC	21 24 9 4 21 20	1859 1970 1871 1872		12 -9 24 -29 12 13	APR 12 MAR 20 APR 15 APR 8 APR 12 APR 15 APR 10	1871 1872 1873 1874 1875	-10 16 9 13
		DEC DEC DEC DEC DEC DEC DEC	21 24 21 20 27 6	1859 1870 1871 1872 1873 1874 1875 1876		12 -9 26 29 12 13	APR 12 MAR 20 APR 15 APR 8 APR 12 APR 15 APR 10 APR 13	1871 1872 1873 1874	-10 16 9 13
	·	DEC DEC DEC DEC DEC DEC DEC DEC JAN DEC	21 24 9 21 20 27 6 7 23	1859 1870 1871 1872 1873 1874 1875 1876	-	12 -9 24 12 13 -6 27 -5	APR 12 MAR 20 APR 15 APR 8 APR 12 APR 15 APR 10 APR 13 FEB 21 APR 13	1871 1872 1873 1874 1875 1876 1877 1878 1878	-10 16 9 13
		DEC DEC DEC DEC DEC DEC DEC DEC DEC DEC	21 24 21 20 27 6 7 23 18	1859 1870 1871 1872 1873 1874 1875 1876	-	12 -9 24 -29 12 13 -6 27 -5 10	APR 12 MAR 20 APR 15 APR 8 APR 12 APR 15 APR 10 APR 13 FEB 21 APR 13 MAR 3 MAY 6	1871 1872 1873 1874 1875 1876 1877 1878 1879 1380 1381	-10 16 9 13 -16 11 14 -37 14 -27 37
		DEC DEC DEC DEC DEC DEC DEC DEC DEC DEC	21 24 9 4 21 20 27 6 7 23 18 23	1859 1870 1871 1872 1873 1875 1875 1876 1878 1878	-	12 -9 -24 -29 12 13 -6 27 -5 10 15 -6 0	APR 12 MAR 20 APR 15 APR 8 APR 12 APR 15 APR 10 APR 13 FEB 21 APR 13 MAR 3 MAY 6 MAR 1	1871 1873 1874 1875 1876 1877 1878 1878 1879 13881 1381	-10 16 9 13
		DEC DEC DEC DEC DEC DEC DEC DEC DEC DEC	21 24 9 4 21 20 27 6 7 23 18 23 2 16	1859 1870 1871 1872 1873 1875 1875 1876 1878 1880 1880 1883 1883	-	12 -9 24 12 13 -6 27 -5 10 15 40 0	APR 12 MAR 20 APR 15 APR 15 APR 12 APR 15 APR 13 FEB 21 APR 13 MAY 6 MAR 1 APR 13 APR 13 APR 13	1871 1872 1873 1874 1875 1876 1877 1879 1380 1380 1882 1883	-10 16 13 -16 11 14 -37 14 -27 -37 -29
		DECCOCCOCCOCCOCCOCCOCCOCCOCCOCCOCCOCCOCCO	21 24 9 4 21 20 27 6 7 23 18 23 21 10 19	1859 1870 1871 1873 1873 1873 1873 1873 1873 1883 188	-	12 -9 24 -29 12 13 -6 27 -5 10 15 40 0	APR 12 MAR 20 APR 15 APR 12 APR 15 APR 10 APR 13 FEB 21 APR 13 MAR 3 MAR 3 MAR 1 APR 13	1871 1872 1873 1874 1875 1876 1877 1878 1879 1380 1381 1882 1883	-10 16 9 13 -16 11 14 -37 14 -27 37 -29 14 14 14
		DEC DEC DEC DEC DEC DEC DEC DEC DEC NON DEC DEC DEC DEC	21 24 21 20 27 6 7 218 23 216 19 31 7	1859 1870 1872 1873 1873 1873 1876 1876 1878 1888 1888 1883 1883	-	12 -9 -24 -29 -12 -3 -6 -6 -7 -7 -10 -6 -7 -14 -2 -26 -14	APR 12 MAR 20 APR 15 APR 16 APR 10 APR 13 FEB 21 APR 13 MAR 13 MAR 13 MAR 13 APR 13 APR 13 APR 13 APR 13 APR 13	1871 1872 1873 1874 1875 1876 1877 1878 1879 1380 1882 1883 1884 1885 1887	-10 16 9 13 -16 11 14 -37 14 -27 37 -29 -16 14 21 +86
		DEC DEC DEC DEC DEC DEC DEC JAN DEC NOV JAN DEC DEC DEC	21 24 21 20 27 7 23 18 23 21 19 31 19 28	1859 1870 1871 1872 1873 1877 1875 1873 1882 1882 1883 1883 1883	-	12 -9 -9 22 22 12 13 -6 -2 27 -5 10 15 -40 0 0 17 14 -2 26 14	APR 12 MAR 20 APR 15 APR 6 APR 12 APR 13 APR 13 FEB 21 APR 13 MAR 3 MAR 1 APR 13 APR 13 APR 13 APR 20 JAN 3 APR 20 JAN 3 APR 12 MAR 3	1871 1872 1873 1874 1875 1876 1877 1879 1380 1381 1883 1885 1888 1888 1888 1888 1888	-10 16 13 -16 11 14 -37 14 -27 -27 -29 14 21 +86 3 13
		DEC	21 24 21 20 27 6 7 23 18 2 2 16 19 31 7 19 28 11 17	1859 1870 1872 1872 1873 1873 1876 1876 1878 1880 1883 1883 1883 1883 1886 1889 1889	-	12 -9 -9 -22 -6 -27 -5 -10 -40 0 17 -2 -26 14 -9 15	APR 12 MAR 20 APR 15 APR 16 APR 12 APR 10 APR 13 FEB 21 APR 13 MAY 6 MAR 1 APR 13 APR 13 APR 20 JAN 3 APR 20 JAN 3 APR 20 JAN 3 APR 20 JAN 3 APR 13 APR 20 JAN 3 APR 20 JAN 3 APR 13 APR 20 JAN 3 APR 20 JAN 3 APR 13	1871 1873 1874 1875 1876 1877 1878 1879 1388 1888 1888 1888 1888 1888 1888 188	-10 16 9 13 -16 11 14 -37 -27 -27 -29 -14 21 +86
		DEC DEC DEC DEC DEC DEC DEC DEC DEC DEC	21 24 21 20 27 27 23 23 21 23 21 19 31 71 28 11 17 33	1859 1870 1872 1873 1873 1875 1876 1876 1888 1888 1888 1888 1888 1888		12 -9 22 22 12 13 15 15 10 15 40 0 0 17 14 -2 26 14 -5 9 15	APR 12 MAR 20 APR 15 APR 15 APR 16 APR 13 FEB 21 APR 13 MAY 6 MAR 13 APR 13 APR 13 APR 13 APR 13 APR 13 APR 13 APR 14 APR 15 APR 16 APR 17 APR 18 APR 18	1871 1872 1873 1874 1875 1876 1876 1877 1879 1388 1888 1888 1888 1888 1888 1888 188	-10 16 9 13 -16 11 14 -37 -27 -29 -16 14 -27 -29 -16 14 -21 -86 3 13 10 -16
		DECC DECC DECC DECC DECC DECC DECC DECC	21 24 21 20 27 28 23 22 16 131 7 19 21 17 28 21 20 20 20 20 20 20 20 20 20 20 20 20 20	1859 1870 1872 1872 1873 1873 1876 1876 1876 1880 1880 1883 1886 1886 1889 1889 1890 1891 1892		12 -9 22 22 12 13 -6 27 15 15 40 0 0 17 14 -2 26 14 -5 9 15	APR 12 MAR 20 APR 15 APR 16 APR 10 APR 13 FEB 21 APR 13 MAR 13 MAR 13 APR 13 APR 20 JAN 23 APR 20 JAN 34 APR 20 JAN 34 APR 20 JAN 34 APR 13 APR 13	1871 1872 1873 1874 1875 1876 1876 1877 1878 1882 1883 1883 1888 1888 1888 1888 188	-10 16 9 13 -16 11 14 -37 -27 -27 -27 -27 -27 -21 +86 3 13 11 10
		DEC	21 24 21 20 27 23 18 22 16 19 31 7 19 28 11 17 3 20 7	18590 18771 18773 18773 18773 18773 18773 18880 18883 18883 18888 18888 18888 18889 18899 18993 18993 18993 18993		12 -9 -22 -22 -3 -6 -27 -5 -10 -4 -0 -17 -4 -2 -26 -14 -5 -9 -15 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1	APR 12 MARR 20 APR 15 APR 16 APR 12 APR 10 APR 13 FEB 21 APR 13 MAR 13 MAR 13 APR 13 APR 20 JAN 23 APR 20 JAN 23 APR 13 APR 24 APR 13 APR 25 MAR 31 APR 14 APR 15 APR 16	1871 1872 1873 1874 1876 1876 1877 1877 1878 1888 1888 1888	-10 16 13 -16 11 -37 -27 -27 -29 -14 -27 -29 -14 -21 +86 -3 13 10 -19
		DECC DECC DECC DECC DECC DECC DECC DECC	21 24 21 20 27 6 7 23 23 21 21 23 21 21 21 21 21 21 21 21 21 21 21 21 21	1859 1870 1872 1872 1873 1873 1876 1876 1880 1880 1888 1888 1888 1888 1889 1892 1892 1892		12 -9 22 22 12 13 -6 27 15 15 40 0 0 17 14 -2 26 14 -5 9 15	APR 12 MAR 20 APR 15 APR 16 APR 17 APR 17	1871 1872 1875 1876 1876 1877 1877 1887 1888 1888 1888	-10 16 9 13 -16 11 14 -37 -27 -29 14 121 -86 3 13 10 -19 7
		DECCODECCODECCODECCODECCODECCODECCODECC	21 24 21 20 27 23 18 2 2 16 19 31 7 19 28 117 3 20 7 ****	18590 1870 18773 18773 18773 18773 18773 18773 18888 18888 18889 18899 18991 1891 18991 18991 18991 18991 18991 18991 18991 18991 18991 18991 18		12 -9 22 22 12 13 15 15 15 15 14 17 14 -2 26 15 14 -2 26 15 14 -2 26 27 27 15 15 15 15 15 15 15 15 15 15 16 17 17 17 17 17 17 18 18 18 18 18 18 18 18 18 18 18 18 18	APR 12 MARR 15 APR 15 APR 15 APR 12 APR 10 APR 13 FEB 21 APR 13 MAY 6 MAR 13 APR 13 APR 13 APR 13 APR 13 APR 13 APR 13 APR 14 APR 15 APR 16 APR 16 APR 16	1871 1872 1873 1874 1876 1876 1876 1876 1887 1888 1888 1888	-10 16 13 -16 11 14 -37 -27 -29 -14 -27 -29 -14 -21 -86 3 13 10 -19 -7

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			FRE	EZE D	ATE	DEVIATION	THAW DA	ATE .	DEVIATION
			DEC	29 *****	1.899		APR 17 APR 11	1900 - 1901	12
			JAN		1902			1902	-15
			JAN		1903	1.6	MAR-18		
			DEC		1903		APR 15	1904	16
	. =		JAN		1905	3		1905	2
				23				1906	10
			JAN		1507			1907	-6
				59			NAR 26 -		-4
			JAN DEC		1909		APR 5 Mar 24	1909 1910	-6
			JAN		1511	<u> </u>		1911-	
			JAN		1912		APR 13	1912	14
			JAN	8	1913	6	MAR 29	1913	-1
	.,		FEB		1914	34	APR 1	1914	2
			DEC		1914				10
				13				1915	. 3
			DEC		1917		MAR 31 MAR 30	1917 1918	1 0
			FEB		1919		MAR-12		
			DEC		1519			1920	-4
	•		JAN	12	1921	10	FEB 15	1921	-43
			JÄÑ	22.	1922	20	MAR 25	1922	· - 5
			JAN	23	1923	21	APR 15	1923	16
				14				1924	. 10
			DEC		1924			1925	-4
			DEC		1925		APR 20 MAR-14	1925	-16 ·
				-28 27	1923		MAR 24	1928	-16 -6
			JAN		1929	13	MAR 27	1929	-3
					1 529	-13 -10 13	MAR 17	1930	-13
			1 A KI	4 52	1071	13		1931	-4
							MAR 26 MAR 30	1932	. 0
			FEB			37		1933	3
			FE6		1934			1934	
			DEC		1935 1935		MAR 26	1935	-4
•			JAN		1537		APR 13	1937	14
			JAN		1938			1938	-18
			FEB		1939		MAR 27	1939	- 3
					1 94.0	5		1940	. 16
			JAN		1941			1941	11
			JAN		1942			1942	5
			NAL NAL		1943 1944			1943	-45
			MAL		1945	s s	MAR 16	1945	-14
					1545		MAR 16 MAR 17	1946	-i3
			DEC			-16	APR 9	1951	10
		O.TAL	<u>£3</u>			·	8.5		-
		ARL Y	NOV				JAN 3		
		ATE		10			MAY 6		47.40
		EAN	// VIA C			18.53			1-7.18
170 •	NAME O	F LAKE:	: ISI	AND		ID CODE: 1	40103		
	_STATE/	PROVI	wI	S			- 		
	LAT:	46 8		AR	EA:	3.07 MAX DEPTH:			
	LONG:	89 47	W			(SQ KM) MEAN DEP TH:			
		/THAW I		OR Y			(METERS)		
				EZE D		DEVIATION	THAW DA	TE 1949	DÉVIATIO
				-1.9					1e
						₹		1951	8
				*****	* ***				
			***	*****	* **			1952	ŏ
	·····		*** ***	***** **** 22	**** 1952		APR 25 APR 16	1952 1953	-9 0
			N□V *** ***	***** ***** 22 27	**** 1952 1953		APR 25 APR 16 APR 21	1952 1953 1954	0 -9 -4
			*** VOV VOV	***** **** 22 27 30	**** 1952 1953 1954	-1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	APR 25 APR 16 APR 21 APR 18	1952 1953 1954 1955	0 -9 -4 -7
			*** VOV VOV	**** **** 22 27 30 ***	**** 1952 1953 1954	-1 · · · · · · · · · · · · · · · · · · ·	APR 25 APR 16 APR 21 APR 18	1952 1953 1954	0 -9 -4

		FREEZE DATENOV-251957	DEVIATION ?	THAW DATE	DEVIATIO
	TOTAL Early	6 NOV 17		9 APR 16	
	LATE MEAN	NOV 30 25 VON	4.51	MAY 13	7 00
		101 20	4.01	APR 25	7 • 85
71	NAME-OF-LAKE	E: KEGONSA		A01 22	,
	SIAIE/PROV:	WIS			
	LAT: 42 56 LUNG: 89 15		11.00 MAX DEPTH:		
				(METERS)	
	FREEZE/THAW	HISTORY	NUMBER OF ENTRIES	32	
··		FREEZE DATE	DEVIATION	THAW DATE APR 1 1905	DEVIATIO
		DEC 3 1905	i ⊷ 8 .	APR 7 1905	9
		DEC 7 1906 DEC 5 1907		MAR 25 1907	-4
		DEC 5 1907 DEC 9 1909		MAR 25 1908 *********	-4
					-8
		****		APR 10 1912	12
		DEC 11 1912		******	
		DEC 9 1922		MAR 31 1922	
	· · · · · · · · · · · · · · · · · · ·	********		APR 18 1924	20
		DEC 8 1924	•	*******	, =~
		DEC 28 1927		MAR 23 1928	6
		DEC 5 1929		MAR-281929 **********	-1
		******	•	APR 1 1934	3
		DEC 28 1534		*****	
		DEC 8 1937		MAR 28 1935 MAR 15 1938	-1 -13
		*****		MAR 31 1938	-13 2
		DEC 28 1939		APR 16 1940	រខិ
				MAR -24 1942	. - 5
		DEC 7 1544		*APR 5 1943	7
		****		MAR 21 1946	
		DEC 2 1945 DEC 1 1947	_	* *****	
		***********	-10	MAR 29 1948 MAR 25 1949	
		DEC 23 1949	12	未未未出来安水水水水水	-4
				MAR 21 - 1953	- e
		ひを 1 2 2 3 1 2 2 3 1 2 2 3 1 3 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3		MAR 15 1954 APR 3 1955	-14
	TOTAL	18		23	5
	EARLY	DEC 1		MAR 15	
·	LATE MEAN	DEC 28 DEC 11	8.83	APR 18	
			V+03	MAR 29	8 • 64
	NAME OF LAKE		ID CODE: 14	90153	
	STATE/PROV: LAT: 43 7		39.40 MAX DEPTH:	25.6	
	LONG: 89 25		(SO KM) MEAN DEPTH:	12.1	
				(METERS)	
	EREEZEZTHAW	HISTORY	NUMBER. OF ENTRIES:	107	
		EDECTE DATE	DEVIATION		
		FREEZE DATE	DEVIATION	THAW DATE	DEVIATION
		DEC 27 1853	7	_APR	-1
		DEC 18 1855	-2	APR 14 1356	8
	···	DEC - 6 - 1856. NOV 25 1857		-MAY 6 1857	30
		DEC 8 1858	-25 -12	MAR 26 1858 MAR 14 1859	-11
		~		900 AT 1009	-23

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	FREEZE D	. —	DEVIATION	THAW DA		DEVIATIO
	DEC 14	-1-859 1860		MAR-26 APR 10	1861	4
		1 661	-18	APR 13	1862	ž
		1862	6	APR 9	1863	3 -
*	DEC 18 DEC 8	1863 1864	-2	APR 21	1864	15
		1855	<u>-1</u> 2	APR 5	1865 1866	
		1866	-2	APR 20	1867	14
	DEC_12	1867	8		1868	<u></u> 6
		1858	-10	APR 16	1869	10
·		1869 1870 -	<u>-18</u>	APR 12	1870	6
		1871	~1	APR 23	1871 1872	17
		1872	-2ô	APR 23	1873	17
>		1873	-21		1874	ė
		1874	-10		1875	9
		1-876 1-876	21		1876	
		1878	-12 17	APR 17 MAR 9	1877 1878	11 -28
		1878	i		1879	6
	DEC 17	1879	- 3		1880	-1ž
		1980	-27	E YAM	1381	27
		1882 1882	1.3		1882	-16
		1883	-10 -2		1883 1884	7 9
		1884	-3		1585	14
		1 885	-8		1886	13
		1 236	-15		1387	٠ و
		1887 1889	4		1888	9
		1890	13 25		1889 1390	· - 6 -7
		1890	-6		1891	10
	DEC_27	1-891			1892	
		1892	-4		1893	1
		1893 1894	-1 6		1894	-22
		1695	3 16		1895 1896	
		1896	1		1897	- <u>1</u>
		1897			1898	-10
		1898	- 1 <u>1</u>		1899	12
		1 <u>39.9</u> 1 900			1900	1 <u>1</u>
		1901	5 -5		1901 1902	5 -7
		902	<u>_</u>		1902 1903	-13
		1903	-7		1904	- 20
		1904			905	 5
		1906 1906	12		1905	2
		LS08	1ž		1907 1908	-13
		1908	2		1900	- 13 1
		1909	- 6		1910	-11
		1910-	-11		t-9-1- 1	-17
		1911 1912	8 4		1912	8
		914	23		1913 1914	-4
		914	-6		1914	4
		L9.1.5	8		916	
-	DEC 16 1	916	- A	APR 11 1	917	. 2 5
		91 7 -919	-9		1918	-1
		519	-11 -11		1919	·=····· - 1 <u>1</u> -
	DEC 25	iśżó	5		1920 1921	-9 -21
	DEC 25 1	921	5		922	-21 -6
	DEC 16 1	922	-4	APR 20 1	923	14
		.924 <u>.</u> .924			924	8 -3
		925	-1 -4		.925 .926	-3
· · · · · · · · · · · · · · · · · · ·		\$26	-14		.925 927	
	DEC 17 1	927	- 3		928	-1c -5
		923	1	MAR 27 1	929	-10.
		929	-17		930	14
		.930 .932	-4 41		931	18
		932	-10		.932 .933	-2
		\$33	°Š		934	-2 -11

			DATE	DEVIATION	THAW DA		DEVIATIO
		DEC 20	1934 1935	-	MAR-28 MAR 30		
		JAN 5		16	APR 13		-7 7
		DEC 7		-13	MAR 22-		<u> </u>
		DEC 28		. 8	APR 4		-2
		JAN 2		13 16	APR 16		10
		JAN 3		14	APR 11 MAR 26		-11
		DEC 7	<u> </u>		APR2		
		DEC 16		-4	APR 8	1944	Ź
		DEC 18		-2		1945	-17
		DEC 30		10	MAR 21 APR 10		-16
		DEC 21	1947	ĭ			4 ~3
		DEC 24		4	APR_3 MAR 30	1949	·
		DEC 23		3	APR 11	1950	5
		DEC 16	1950 1951	- 9	APR-12		6
		DEC 30		10	APR 8 APR 21	1952	2 15
		DEC 30	1953	i •	MAR 25		
		JAN 2		1 3	APR 🧆	1955	-2
		<u>DEC 12</u> DEC 14		<u>-8</u>	APR 4		- <u>2</u>
		DEC 30		-6 10	APR A		-2
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73.	STATE/PROV: LAT: 43 LONG: 89 2	WIS 4 N 2 W HISTORY FREEZE	AREA: (:	TYPE TANK OF THE PROPERTY OF T	19.5 H: 8.3 (METERS)	·	DEVIATIO
73.	STATE/PROV: LAT: 43 LONG: 89 2	WIS 4 N 2 W HISTORY FREEZE DEC 13	DATE 1851	NUMBER OF ENTRI	19:5 H: 8.2 (METERS) IES: 106 THAW DA' MAR 25	1852	DEVIATIO
73.	STATE/PROV: LAT: 43 LONG: 89 2	HISTORY FREEZE DEC 13	DATE 1851	NUMBER OF ENTRI	19:5 IH: 8:0 (METERS) (ES: 106 THAW DA MAR 25 ******	1852 ****	-9
73.	STATE/PROV: LAT: 43 LONG: 89 2	HISTORY FREEZO DEC 13 DEC 21 DEC 18 DEC 4	DATE 1851 1853 1855 1856	TYPE TANK OF THE PROPERTY OF T	19-5 H: 8-2 (METERS) (ES: 106 THAW DA' MAR 25 **********	1852 **** 1856	-9 11
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73.	STATE/PROV: LAT: 43 LONG: 89 2 FREEZE/THAW	WIS HISTORY FREEZE DEC 13 DEC 21 DEC 18 DEC 4 NOV 23 DEC 11	DATE 1851 1853 1855 1856 1856 1857 1858	NUMBER OF ENTRI	19-5 (METERS) (METERS) (ES: 106 THAM DA MAR 25 ******* APR 14 MAY 4 MAY 22 MAR 15	1852 **** 1856 1857 1858 1859	-9 11
73.	STATE/PROV: LAT: 43 LONG: 89 2 FREEZE/THAW	HISTORY FREEZE DEC 21 DEC 18 DEC 4 NOV. 23 DEC 11 DEC 6	DATE 1851 1853 1855 1856 1857 1858 1859	NUMBER OF ENTRI	#####################################	1852 **** 1856 1857 1858 1859	-9 11 31 -12 -19 -8
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73.	STATE/PROV: LAT: 43 LONG: 89 2 FREEZE/THAW	FREEZE DEC 13 DEC 21 DEC 18 DEC 4 NOV 4 NOV 4 NOC 51 DEC 6 DEC 11 DEC 6 DEC 2 DEC 7	DATE 1851 1853 1856 1856 1857 1858 1859 1830 1861	DEVIATION————————————————————————————————————	19-5 H: 8.4 (METERS) [ES: 106 THAN DA MAR 25 ******* APR 14 MAY 4 MAY 4 MAR 22 MAR 15 MAR 26 APR 17	1852 **** 1856 1857 1858 1859 1860 1861— 1861—	-9 11 31 -12 -19 -8 10
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74.			ID C00E:	140193 ,	
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75.	NAME OF LAKE STATE/PROV: LAT: A3 5 LONG: 38 54	wis N AREA:	ID CODE: 5.55 MAX DEPTH (SQ KM) MEAN-DEP-TH	17.1	
75.	STATE/PROV: LAT: 43 5	wis N AREA:	5.55 MAX DEPTH	17.1	
75.	STATE/PROV: LAT: 43 5	wis n area: w	5.55 MAX DEPTH	17.1 46.1 (METERS)	
75.	STATE/PROV: LAT: 43 5 LONG:38-54	wis n area: w	5.55 MAX DEPTH (SQ.KM)MEAN-DEPTH	17.1 46.1 (METERS)	E DEVIATI
75.	STATE/PROV: LAT: 43 5 LONG:38-54	WIS N AREA: W HISTORY FREEZE DATE A**********	5.55 MAX DEPTH (SQ KM) MEAN-DEPTH NUMBER OF ENTRIS	17-1 1: 6-1 (METERS) 2S: 32 THAW DAT AFR 14 1	92413
75.	STATE/PROV: LAT: 43 5 LONG:38-54	WIS N AREA: W HISTORY FREEZE DATE A***********************************	5.55 MAX DEPTH (SQ KM) MEAN-DEPTH NUMBER OF ENTRIS	17-1 1:6-1 (METERS) 2S: 32 THAW DAT AFR 14 1 MAR 27 1	924 13 925 5
75.	STATE/PROV: LAT: 43 5 LONG:38-54	WIS N AREA: W HISTORY FREEZE DATE A**********	5.55 MAX DEPTH (SQ KM) MEAN-DEPTH NUMBER OF ENTRIS	17-1 1:6-1 (METERS) 2S: 32 THAW DAT AFR 14 1 MAR 27 1 APR 16 1	92413 925 - 6 926 15
75.	STATE/PROV: LAT: 43 5 LONG:38-54	WIS N AREA: W HISTORY FREEZE DATE ************************************	5.55 MAX DEPTH (SQ KM) MEAN-DEPTH NUMBER OF ENTRIS	THAW DAT AFR 14 1 APR 16 1 APR 19 1 MAR 24 1	92413 925 -5 926 15 927 -13 928 -6
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75.	STATE/PROV: LAT: 43 5 LONG:38-54	WIS N AREA: W HISTORY FREEZE DATE ************************************	5.55 MAX DEPTH (SQ KM) MEAN-DEPTH NUMBER OF ENTRIS	THAW DAT AFR 14 1 APR 16 1 MAR 27 1 APR 16 1 MAR 24 1 MAR 28 1 MAR 28 1 MAR 18 1	924 13 925 -5 926 15 927 -13 928 -6 929 -4 930 -14
75.	STATE/PROV: LAT: 43 5 LONG:38-54	WIS N AREA: W FREEZE DATE ************* *********** ********	5.55 MAX DEPTH (SQ KM) MEAN-DEPTH NUMBER OF ENTRIS	THAW DAT AFR 14 1 MAR 27 1 APR 16 1 MAR 24 1 MAR 28 1 MAR 25 1 MAR 25 1	92413 925 -5 926 15 927 -13 928 -6 929 -4 930 -14 931 -7
75.	STATE/PROV: LAT: 43 5 LONG:38-54	WIS N AREA: W FREEZE DATE ************************************	5.55 MAX DEPTH (SQ KM) MEAN-DEPTH NUMBER OF ENTRIS	THAW DAT AFR 14 1 MAR 27 1 APR 16 1 MAR 19 1 MAR 28 1 MAR 27 1 MAR 28 1 MAR 28 1 MAR 27 1 MAR 28 1 MAR 28 1 MAR 28 1 MAR 28 1	924
75.	STATE/PROV: LAT: 43 5 LONG:38-54	# S AREA: W AREA: # C AREA: #	5.55 MAX DEPTH (SQ KM) MEAN-DEPTH NUMBER OF ENTRIS	THAW DAT AFR 1A 1 AFR 16 1 MAR 27 1 APR 16 1 MAR 28 1 MAR 21 1 MAR 21 1	924
75.	STATE/PROV: LAT: 43 5 LONG:38-54	WIS N AREA: W TISTORY FREEZE DATE 	5.55 MAX DEPTH (SQ KM) MEAN-DEPTH NUMBER OF ENTRIS	THAW DAT AFR 1A 1 MAR 27 1 APR 16 1 MAR 24 1 MAR 28 1 MAR 28 1 MAR 18 1 MAR 18 1 MAR 18 1 MAR 19 1 MAR 19 1 MAR 19 1 MAR 20 1 MAR 19 1 MAR 21 1 MAR 30 1	924
75.	STATE/PROV: LAT: 43 5 LONG:38-54	# S AREA: W AREA: # C AREA: #	5.55 MAX DEPTH (SQ KM) MEAN-DEPTH NUMBER OF ENTRIS	THAW DAT AFR 14 1 MAR 27 1 APR 16 1 MAR 24 1 MAR 28 1 MAR 28 1 MAR 28 1 MAR 18 1 APR 16 1 MAR 21 1 MAR 29 1	924
75.	STATE/PROV: LAT: 43 5 LONG:38-54	### AREA: ###################################	5.55 MAX DEPTH (SQ KM) MEAN-DEPTH NUMBER OF ENTRIS	THAW DAT AFR 16 1 MAR 27 1 APR 16 1 MAR 28 1 MAR 28 1 MAR 25 1 APR 4 1 MAR 25 1 APR 4 1 MAR 21 1 MAR 22 1	924
75.	STATE/PROV: LAT: 43 5 LONG:38-54	**************************************	5.55 MAX DEPTH (SQ KM) MEAN-DEPTH NUMBER OF ENTRIS	THAW DAT AFR 1A 1 MAR 27 1 APR 16 1 MAR 24 1 MAR 28 1 MAR 28 1 MAR 18 1 MAR 18 1 MAR 19 1 MAR 19 1 MAR 20 1 MAR 21 1 MAR 21 1 MAR 21 1 MAR 22 1 MAR 22 1 MAR 21 1 MAR 22 1 MAR 21 1 MAR 22 1 MAR 21 1 MAR 22 1	924
75.	STATE/PROV: LAT: 43 5 LONG:38-54	TRAREA: W FREZE DATE FREZE AXXXXX FREZE AXXXXX FREZE AXXXXX FREZE AXXXXX FREZE AXXXXX FREZE AXXXX FREZ AXXX	5.55 MAX DEPTH (SQ KM) MEAN-DEPTH NUMBER OF ENTRIS	THAW DAT AFR 14 1 MAR 27 1 APR 16 1 MAR 28 1 MAR 28 1 MAR 28 1 MAR 28 1 MAR 21 1 MAR 25 1 MAR 21 1	924
75.	STATE/PROV: LAT: 43 5 LONG:38-54	**************************************	5.55 MAX DEPTH (SQ KM) MEAN-DEPTH NUMBER OF ENTRIS	THAW DAT AFR 14 1 MAR 27 1 APR 16 1 MAR 28 1 MAR 28 1 MAR 28 1 MAR 28 1 MAR 21 1 MAR 25 1 MAR 21 1 MAR 27 1 APR 12 1 MAR 29 1 APR 12 1 APR 12 1 APR 14 1 APR 15 1 APR 11 1	924
75.	STATE/PROV: LAT: 43 5 LONG:38-54	**************************************	5.55 MAX DEPTH (SQ KM) MEAN-DEPTH NUMBER OF ENTRIS	THAW DAT AFR 14 1 MAR 27 1 APR 16 1 MAR 28 1 MAR 28 1 MAR 28 1 MAR 21 1 APR 15 1 APR 1 1 1 APR 1 1	924
75.	STATE/PROV: LAT: 43 5 LONG:38-54	######################################	5.55 MAX DEPTH (SQ KM) MEAN-DEPTH NUMBER OF ENTRIS	THAW DAT AFR 14 1 MAR 27 1 APR 16 1 MAR 28 1 MAR 28 1 MAR 28 1 MAR 28 1 MAR 21 1 MAR 1 1	924 925 926 927 928 929 940 931 932 931 932 3933 113 934 11 936 937 937 938 937 938 939 939 939 939 930 931 931 932 933 934 935 936 937 937 938 939 939 930 931 931 932 933 934 935 936 937 937 938 938 939 939 930 931 932 933 934 935 936 937 937 938 938 939 939 930 931 931 932 933 934 935 936 937 937 938 938 938 938 938 939 939 930 930 931 931 932 933 934 935 937 938 938 938 938 938 939 939 939
75.	STATE/PROV: LAT: 43 5 LONG:38-54	**************************************	5.55 MAX DEPTH (SQ KM) MEAN-DEPTH NUMBER OF ENTRIS	THAW DAT AFR 14 1 MAR 27 1 APR 16 1 MAR 28 1 MAR 28 1 MAR 28 1 MAR 28 1 MAR 21 1 APR 12 1 APR 12 1 APR 12 1 APR 1 1 APR 2 1	924
75.	STATE/PROV: LAT: 43 5 LONG:38-54	**************************************	5.55 MAX DEPTH (SQ KM) MEAN-DEPTH NUMBER OF ENTRIS	17.1 1	924 925 926 927 -13 928 929 -4 930 -14 931 -7 932 -3 932 -13 934 -11 935 -2 936 -3 936 -3 937 11 939 -4 -11 -2 939 -12 939 -13 -14 -15 -16 -16 -16 -16 -16 -16 -16 -16
75.	STATE/PROV: LAT: 43 5 LONG:38-54	**************************************	5.55 MAX DEPTH (SQ KM) MEAN-DEPTH NUMBER OF ENTRIS	THAW DAT AFR 14 1 MAR 27 1 APR 16 1 MAR 28 1 MAR 28 1 MAR 28 1 MAR 28 1 MAR 20 1	924
75.	STATE/PROV: LAT: 43 5 LONG:38-54	AREA: NW FREATE AREA: FREATE AR	5.55 MAX DEPTH (SQ KM) MEAN-DEPTH NUMBER OF ENTRIS	THAW DAT AFR 14 1 MAR 27 1 APR 16 1 MAR 28 1 MAR 28 1 MAR 28 1 MAR 28 1 MAR 21 1 MAR 22 1 APR 12 1 APR 1 1 APR 1 1 1 APR 1 1 1 APR 2 1 MAR 22 1 MAR 31 1	924 925 926 927 -13 928 929 -4 930 -14 931 -7 932 -3 932 -13 934 -11 935 -2 936 -3 936 -3 937 11 939 -4 -11 -2 939 -12 939 -13 -14 -15 -16 -16 -16 -16 -16 -16 -16 -16

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			*****			MAR	24 195		
	TOTAL	*****	*** ***			. APR	ຸ5 195	5	4
	EARLY	****			·	MAR 3	í a		
	LATE ME-AN	***** *			_	APR :	16		
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76 •	NAME OF LAKE STATE/PROV:	WIS			ID CODE:				
	LAT: 45 46	N	AREA:	10.47	MAX DEPTH	H: 11.0			
	LONG: 91 54	W		(SQ KM)	MEAN DEP	TH: 0.0			
		,					5)		
	FREEZE/THAW I	HISTORY		NUMBE	R OF ENTR:	IES: 58			
									· · · · · · · · · · · · · · · · · · ·
		Ence :=							
	•	FREEZE		OE V	IATION		DATE 2 189:		DEVIATIO
		****	****	· · · · · · · · · · · · · · · · · · ·			0.139		. 18
		****				APR 1	9 1894	ļ.	-3
		****** NOV 30		<u> </u>		APR 1			-3
		DEC 3	1905		3	APR-2	:0 -190: 5 190:		<u>-</u> 2- 13
		DEC 1	1907	·····	1	APR 1	7 1909		1 5
		DEC 5	1908 1909		5	MAY 1			19
		NOV 28			フ - 2	APR 2	7 1910 8 1911		5
		NOV 16	1911		14	APR 1			6 -7
		DEC 8	1912		8	AFR 2	3 1913	3	i
		DEC 18	1913 1914		13		5-191		
-		DEC 2	1915	•	2	APR 2 APR 2			-1 -1
		NOV 25	1916		-5		3 - 1917		11
		DEC 4 DEC 6	1917 1918		4	APR 2			c
		NOV 26	1519		- 4	APR 2			. ~8 3
		DEC 17	1920		: 7		5 1921		-îċ
		DEC 6	1921 1922		5	APR-2			
		DEC 5	1923		6 5	MAY APR 2			10
		NOV 29	1923		·i —	APR 2			<u>4</u>
		NOV 24	1925		. o	APR 2	4 1926	1	2
		NOV 21 DEC 1	1.525_ 1927	· · · · · · · · · · · · · · · · · · ·	-9 1	APR_1 MAY			8
		DEC 5	1928		ີ້ສ		1 1928 7 1929		9 -15
		NOV 24	1929-		-6	APR-1	2 1930		
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		NÖV 16	i śśż-			APR 2			- C
		NOV 15	1933	_	ร์	APR 2			3
		DEC 2 NOV 22	1.934 1.935		2	APR., 2	2 1935		0
		NOV 25	1935	-	·9 ·5	MAY APR 2	1 1936 6 1937		9
		NOV 22	-1937-		8	ĀFRĪ-	i 1938		
		NOV 23 DEC 14	1936		7	APR 2	5 1939	•	
	· · · · · · · · · · · · · · · · · · ·	NOV-28-	<u> 1939</u> 1940-	<u>_</u>	<u>^</u>	APR 3			
		DEC 10	1541	1	o	APR 1			-8 -5
			1 942.		2	AFR 2	4 1943		-5 . 2 . 3
		NOV 20 DEC 12	1943 1944	-1	0 2	APR 21	_		, <u>3</u>
		NOV 25	-1935 -	1	<u>5</u>	MAR 3	1 1945 31946		-22
		NOV 25	1946	-	5	APR 2			15·· 7
		NOV 26	1947		4	APR 1	8 1948		-4
		DEC 7	1948		7	APR 1			-5
		NOV. 24	1950		5		9 1950 1 1951		17
		NOV 18	1 5 5 1	-1	2	APR 2			9 4
		NOV 19	1952	-1	1	APR 1			-6

		FREEZE DATE	SEVIATION		
		- DEC 10 - 1 :953-	1.0	APR-201954	2
		DEC 2 1954 NOV 19 1955	-11	APR 17 1955 APR 28 1956	
		DEC 8 1956	8	APR 24 1957	6 2
		DEC 2 1957 NOV 28 1958	-2 -2	APR 16 1958	. –6
	TOTAL	54		<u>APR 22 1959</u> 58	0
	EARLY LATE	NOV 15 - DEC 18		MAR 31	
	MEAN	NOV 30	8.11	MAY-11	8.42
-					
L <u>77.</u>	NAME OF LAKE STATE/PROV:	SPOONER	ID CO	DE: 140243	
	LAT: 45 50	N AREA:	4+42 MAX D	EPTH: 5.2 DEP TH: 0. 0	
	LONG: 91 -49	} ₩	-(-SQ-KM)MEAN-	DEP-TH:	
				(METERS)	
	FREEZEZTHAW	HISTORY	NUMBER OF E	VIRIES: 4	

			DEVIATION	THAW DATE	DEVIATION
		******		APR 22 1957	- - 5
		**************************************		APR 22 1957 APR 12 1959 APR 17 1959 —	
	TOTAL	1	<u> </u>	4	1
	EARLY	NOV 27		APR 11 APR 22	
				ADE 22	
78.	STATE/PROV:	SUMMIT WIS	0.0 ID CO:	APR 16	4.42
78•	NAME OF LAKE STATE/PROV: LAT: &6 2E LONG: 92 15	SUMMIT WIS N AREA:	1.55 MAX DEAN C	APR 16 DE: 140253 EPTH: 4.9 EPTH: 0.0 (METERS)	4.42
78•	NAME OF LAKE STATE/PROV: LAT: &6 2E LONG: 92 15	SUMMIT WIS N AREA:	10 COS 1.55 MAX DO (SQ KM) MEAN S NUMBER OF EN	APR 16 DE: 140253 EPTH: 4.0 EPTH: 0.0 (METERS) HTRIES: 2	4.42
78.	NAME OF LAKE STATE/PROV: LAT: &6 2E LONG: 92 15	SUMMIT WIS N AREA:	10 COS 1.55 MAX DO (SQ KM) MEAN S NUMBER OF EN	APR 16 DE: 140253 EPTH: 4.0 EPTH: 0.0 (METERS) HTRIES: 2	
78.	MEAN NAME OF LAKE STATE/PROV: LAT: %6 2E LONG: 92 15 FREEZE/THAW	SUMMIT WIS N AREA: W HISTORY FREEZE DATE ************************************	10 COC 1.55 MAX DO (SQ KM) MEAN DO NUMBER OF EN DEVIATION	APR 16 DE: 140253 EPTH: 4.0 EPTH: 0.0 (METERS) HTRIES: 2	DEVIATION
78.	MEAN NAME OF LAKE STATE/PROV: LAT: %6 2E LONG: 92 15 FREEZE/THAW	**************************************	ID COL 1.55 MAX DE (SQ KM) MEAN DE NUMBER OF EN	APR 16 DE: 140253 EPTH: 4.0 DEPTH: 0.0 (METERS) MTRIES: 2 THAW DATE APR 21 1958 APR 23 1959 2	DEVIATION
78.	MEAN NAME OF LAKE STATE/PROV: LAT: %6 2E LONG: 92 15 FREEZE/THAW	FREEZE DATE *************** NOV 17 NOV 17	ID COO 1.55 MAX DO (SQ KM) MEAN DO NUMBER OF EN 	APR 16 DE: 140253 EPTH: 4.9 EPTH: 0.0 (METERS) ITRIES: 2 THAW DATE APR 21 1958 APR 23 1959 APR 21	DEVIATION
78.	MEAN NAME OF LAKE STATE/PAG 2E LAT: #60 2E LONG: 92 15 FREEZE/THAW TOTAL EARLY	FREEZE DATE *************** NOV 17 NOV 17	ID COL 1.55 MAX DE (SQ KM) MEAN DE NUMBER OF EN	APR 16 DE: 140253 EPTH: 4.9 DEPTH: 0.0 (METERS) MITRIES: 2 THAW DATE APR 21 1958 APR 23 1959 2 APR 23 APR 23	DEVIATION -1 1
78.	MEAN NAME OF LAKE STATE/PROV: LAT: 46 2E LONG: 92 15 FREEZE/THAW TOTAL EARLY LATE	FREEZE DATE *************** NOV 17 NOV 17	ID COO 1.55 MAX DO (SQ KM) MEAN DO NUMBER OF EN 	APR 16 DE: 140253 EPTH: 4.9 DEPTH: 0.0 (METERS) MITRIES: 2 THAW DATE APR 21 1958 APR 23 1959 2 APR 23 APR 23	DEVIATION
	MEAN NAME OF LAKE STATE/PROV: LAT:	SUMMIT WIS N AREA: W HISTORY FREEZE DATE *********** NOV 17 1958 1 NOV 17 NOV 17 NOV 17 TROUT	ID COO 1.55 MAX DE (SQ KM) MEAN DE NUMBER OF EN 	APR 16 DE: 140253 EPTH: 4.9 DEPTH: 0.0 (METERS) MITRIES: 2 THAW DATE APR 21 1958 APR 23 1959 2 APR 23 APR 23	DEVIATION
	MEAN NAME OF LAKE STATE/PROV: LAT: 46 28 LONG: 92 15 FREEZE/THAW TOTAL EARLY LATE MEAN NAME OF LAKE STATE/PROV: LAT: 46 3	FREEZE DATE *********** NOV 17 1958 NOV 17	ID COO 1.55 MAX DE (SQ KM) MEAN DE NUMBER OF EN DEVIATION 0 0.0 ID COD 15.46 MAX DE	APR 16 DE: 140253 EPTH: 4.9 DEPTH: 0.0 (METERS) ITRIES: 2 THAW DATE APR 21 1958 APR 23 1959 APR 21 APR 23 APR 22 E: 140263 PTH: 35.0	DEVIATION
	MEAN NAME OF LAKE STATE/PROV: LAT: 46 2E LONG: 92 15 FREEZE/THAW TOTAL EARLY LATE MEAN NAME OF LAKE	FREEZE DATE *********** NOV 17 1958 NOV 17	ID COO 1.55 MAX DE (SQ KM) MEAN DE NUMBER OF EN DEVIATION 0 0.0 ID COD 15.46 MAX DE	APR 16 DE: 140253 EPTH: 4.9 DEPTH: 0.0 (METERS) HTRIES: 2 THAW DATE APR 21 1958 APR 23 1959 APR 23 APR 23 APR 22 E: 140263 PTH: 35.0 EPTH: 0.0	DEVIATION
	MEAN NAME OF LAKE STATE/PROV: LAT: 46 28 LONG: 92 15 FREEZE/THAW TOTAL EARLY LATE MEAN NAME OF LAKE STATE/PROV: LAT: 46 3	FREEZE DATE ************ NOV 17 1958 NOV 17 NOV 17 NOV 17 NOV 17 ********** TROUT *********** ************* ********	ID COO 1.55 MAX DE (SQ KM) MEAN DE NUMBER OF EN DEVIATION 0 0.0 ID COD 15.46 MAX DE	APR 16 DE: 140253 EPTH: 4.9 DEPTH: 0.0 (METERS) MITRIES: 2 THAW DATE APR 21 1958 APR 23 1959 APR 21 APR 23 APR 22 E: 140263 PTH: 35.0 EPTH: 0.0 (METERS)	DEVIATION
	MEAN NAME OF LAKE STATE/PROV: LAT: 46 2E LONG: 92 15 FREEZE/THAW TOTAL EARLY LATE MEAN NAME OF LAKE STATE/PROV: LAT: 46 3 LONG: 89 40	FREEZE DATE ************ NOV 17 1958 NOV 17 NOV 17 NOV 17 NOV 17 ********** TROUT *********** ************* ********	ID COO 1.55 MAX DE (SQ KM) MEAN D DEVIATION 0 0 0.0 ID COD 15.46 MAX DE (SQ KM) MEAN D	APR 16 DE: 140253 EPTH: 4.9 DEPTH: 0.0 (METERS) MITRIES: 2 THAW DATE APR 21 1958 APR 23 1959 APR 21 APR 23 APR 22 E: 140263 PTH: 35.0 EPTH: 0.0 (METERS)	DEVIATION
	MEAN NAME OF LAKE STATE/PROV: LAT: 46 2E LONG: 92 15 FREEZE/THAW TOTAL EARLY LATE MEAN NAME OF LAKE STATE/PROV: LAT: 46 3 LONG: 89 40	FREEZE DATE ********** NOV 17 1958 1 NOV 17 NOV 17 NOV 17 NOV 17 ********** ********* ********* *******	ID COO 1.55 MAX DE (SQ KM) MEAN D DEVIATION 0 0 0.0 ID COD 15.46 MAX DE (SQ KM) MEAN D	APR 16 DE: 140253 EPTH: 4.9 DEPTH: 0.0 (METERS) MITRIES: 2 THAW DATE APR 21 1958 APR 23 1959 APR 21 APR 23 APR 22 E: 140263 PTH: 35.0 EPTH: 0.0 (METERS)	DEVIATION -1 1
	MEAN NAME OF LAKE STATE/PROV: LAT: 46 2E LONG: 92 15 FREEZE/THAW TOTAL EARLY LATE MEAN NAME OF LAKE STATE/PROV: LAT: 46 3 LONG: 89 40	SUMMIT WIS N AREA: W HISTORY FREEZE DATE ***************** NOV 17 1958 1 NOV 17 NOV 17 NOV 17 NOV 17 TROUT WIS N AREA: W HISTORY FREEZE DATE ************************************	ID COOL 1.ES MAX DE (SQ KM) MEAN DE NUMBER OF EN DEVIATION 0 C.C ID COD 15.46 MAX DE (SQ KM) MEAN DE NUMBER OF EN	APR 16 DE: 140253 EPTH: 4.9 DEPTH: 0.0 (METERS) ITRIES: 2 THAW DATE APR 21 1958 APR 23 1959 APR 21 APR 23 APR 22 E: 140263 PTH: 35.0 EPTH: 0.0 (METERS) TRIES: 10 THAW DATE APR 30 1942	DEVIATION -1 1
	MEAN NAME OF LAKE STATE/PROV: LAT: 46 2E LONG: 92 15 FREEZE/THAW TOTAL EARLY LATE MEAN NAME OF LAKE STATE/PROV: LAT: 46 3 LONG: 89 40	FREEZE DATE ********** NOV 17 1958 1 NOV 17 NOV 17 NOV 17 NOV 17 ********** ********* ********* *******	ID COOL 1.ES MAX DE (SQ KM) MEAN DE NUMBER OF EN DEVIATION 0 C.C ID COD 15.46 MAX DE (SQ KM) MEAN DE NUMBER OF EN	APR 16 DE: 140253 EPTH: 0.0 (METERS) ITRIES: 2 THAW DATE APR 21 1958 APR 23 1959 2 APR 21 APR 23 APR 23 APR 22 THAW DATE APR 23 APR 23 APR 20 THAW DATE APR 20 THAW DATE APR 20 THAW DATE APR 30 1942 MAY 1 1943	DEVIATION 1.00 DEVIATION 0
79.	MEAN NAME OF LAKE STATE/PROV: LAT: 46 2E LONG: 92 15 FREEZE/THAW TOTAL EARLY LATE MEAN NAME OF LAKE STATE/PROV: LAT: 46 3 LONG: 89 40	**************************************	ID COOL 1.ES MAX DE (SQ KM) MEAN DE NUMBER OF EN DEVIATION 0 C.C ID COD 15.46 MAX DE (SQ KM) MEAN DE NUMBER OF EN	APR 16 DE: 140253 EPTH: 4.9 EPTH: 0.0 (METERS) ITRIES: 2 THAW DATE APR 21 1958 APR 23 1959 APR 21 APR 23 APR 22 E: 140263 PTH: 35.0 EPTH: 0.0 (METERS) TRIES: 10 THAW DATE APR 30 1942 MAY 1 1943 MAY 3 1944 MAY 6 1947	DEVIATION 1.00 DEVIATION 0 -1 3
	MEAN NAME OF LAKE STATE/PROV: LAT: 46 2E LONG: 92 15 FREEZE/THAW TOTAL EARLY LATE MEAN NAME OF LAKE STATE/PROV: LAT: 46 3 LONG: 89 40	**************************************	ID COOL 1.ES MAX DE (SQ KM) MEAN DE NUMBER OF EN DEVIATION 0 C.C ID COD 15.46 MAX DE (SQ KM) MEAN DE NUMBER OF EN	APR 16 DE: 140253 EPTH: 4.9 DEPTH: 0.0 (METERS) ITRIES: 2 THAW DATE APR 21 1958 APR 23 1959 APR 21 APR 23 APR 22 E: 140263 PTH: 35.0 EPTH: 0.0 (METERS) TRIES: 10 THAW DATE APR 30 1942 MAY 1 1943 MAY 3 1940 MAY 6 1947 APR 23 1948	DEVIATION -1 1 -1 1 -1 1 -1 -1 -1 -1 -1 -1 -1 -1
	MEAN NAME OF LAKE STATE/PROV: LAT: 46 2E LONG: 92 15 FREEZE/THAW TOTAL EARLY LATE MEAN NAME OF LAKE STATE/PROV: LAT: 46 3 LONG: 89 40	**************************************	ID COOL 1.55 MAX DE (SQ KM) MEAN DE NUMBER OF EN DEVIATION 0 15.46 MAX DE (SQ KM) MEAN DE NUMBER OF EN DEVIATION	APR 16 DE: 140253 EPTH: 4.9 DEPTH: 0.0 (METERS) ITRIES: 2 THAW DATE APR 21 1958 APR 23 1959 2 APR 21 APR 23 APR 22 E: 140263 PTH: 35.0 EPTH: 0.0 (METERS) TRIES: 10 THAW DATE APR 30 1942 MAY 1 1943 MAY 3 1944 MAY 6 1947 APR 23 1948 MAY 15 1950	DEVIATION -1 1
	MEAN NAME OF LAKE STATE/PROV: LAT: 46 2E LONG: 92 15 FREEZE/THAW TOTAL EARLY LATE MEAN NAME OF LAKE STATE/PROV: LAT: 46 3 LONG: 89 40	**************************************	ID COOL 1.55 MAX DE (SQ KM) MEAN DE NUMBER OF EN DEVIATION 0 15.46 MAX DE (SQ KM) MEAN DE NUMBER OF EN DEVIATION	APR 16 DE: 140253 EPTH: 4.9 DEPTH: 0.0	DEVIATION -1 1 -1 1 -1 1 -1 -1 -1 -1 -1 -1 -1 -1

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		FREEZE DATE **********		THAW DATEAPR_291959	DEVIATI
	TOTAL Early	0 *****		10 APR 22	
	MEAN	*****	0.0	MAY 15	
				APR 30	6.66
NAME	OF LAK	E:WAUBESA	ID CODE:	140273	
STAT	TE/PROV:	WIS			
	: 89 <u>1</u>		8.55 MAX DEPTH	1; 10.4 TH: 4.9	
				(METERS)	
FREE	ZE/THAW	HISTORY	NUMBER OF ENTRI	IES: 17	
				·	
		FREEZE DATE	DEVIATION	THAW DATE	DEVIATI
		******	_	MAR-27-1939 APR 10 1940	9
		—————————————————————————————————————		APR 9 1941	ε
		*******		APR 24 1942 APR 2 1943	23
		********		MAR 30 1944	-2
		*****		MAR 17 1945	-15
	·	*********		MAR 19 1946	-13
		*******		MAR 27 1947	· · · · 5 - 5
		*************		MAR 27 1949	-5 -5
		DEC 14 1949 NOV 23 1950	9	APR 7 1950	6
	· · · · · · · · · · · · · · · · · · ·	- DEC 14 . 1951.		APR 11 1951 APR 5 1952	10
	•	DEC 6 1952	-3	MAR 21 1953	-11
		DEC 18 1953 DEC 10-1954		MAR 18 1954	- 14
	TOTAL	6 6 10-1954		APR3 1955	2
	EARLY	NOV 23		17 MAR 17	
	LATE	OEC 18	- · · ·	APR 24	
<u></u> -	MEAN	DEC 9	8.13	APR 1	9 • 84
SIAI	LZPRUVI	WIS	-: 5c00-d1-		
SIAI	LZPRUVI	WIS			
SIAI	**************************************	WIS	ID-CODE: O+0 OFFI O+0 OFFI OFFI	: 4.2 H: 0.0	
LAT:	43_3 : 89_25	WIS		: 4.2 H: 0.0 (METERS)	
LAT:	43_3 : 89_25	HISTORY	C.C MAX DEPTH (SQ KM) MEAN DEPTH NUMBER OF ENTRIS	: 4.2 H: 0.0 (METERS) ES: 44	
LAT:	43_3 : 89_25	HISTORY FREEZE DATE	C.C MAX DEPTH (SQ KM) MEAN DEPTH NUMBER OF ENTRIS	: 4.2 H: 0.0 (METERS) ES: 44 THAW DATE	DEVIATIO
LAT:	43_3 : 89_25	HISTORY	C.C MAX DEPTH (SO KM) MEAN DEPTH NUMBER OF ENTRIS DEVIATION 34	: 4.2 H: 0.0 (METERS) ES: 44 THAW DATE MAR 9 1878	-2C
LAT:	43_3 : 89_25	HISTORY FREEZE CATE DEC 29 1877 DEC 6 1878 NOV 19 1879	C.C MAX DEPTH (SQ KM) MEAN DEPTH NUMBER OF ENTRIS DEVIATION 34 11 -6	: 4.2 H: 0.0 (METERS) ES: 44 THAW DATE MAR 9 1878 MAR 29 1879	- 2C
LAT:	43_3 : 89_25	FREEZE CATE DEC 29 1877 DEC 6 1878 NOV 19 1879 NOV 16 1860	C.C MAX DEPTH (SQ KM) MEAN DEPTH NUMBER OF ENTRIS DEVIATION 34 11 -6 -9	: 4.2 H: 0.0 (METERS) ES: 44 THAW DATE MAR 9 1878 MAR 29 1879 MAR 23 1880 APR 29 1691	-20 -6 31
LAT:	43_3 : 89_25	FREEZE CATE DEC 29 1877 DEC 6 1878 NOV 19 1879 NOV 16 1860 NOV 20 1831	C.C MAX DEPTH (SQ KM) MEAN DEPTH NUMBER OF ENTRIS DEVIATION 34 11 -6	: 4.2 H: 0.0 (METERS) ES: 44 THAW DATE MAR 9 1879 MAR 29 1879 MAR 23 1880 APR 29 1881 MAR 29 1881 MAR 29 1881	-20 0 -6 31 -27
LAT:	43_3 : 89_25	FREEZE CATE DEC 29 1877 DEC 6 1873 NOV 19 1879 NOV 16 1860 NOV 20 1861 DEC 2 1882 NOV 15 1883	C.C MAX DEPTH (SQ KM) MEAN DEPTH NUMBER OF ENTRIS DEVIATION 34 11 -6 -9	## 4.2 ## 0.0 (METERS) ## DATE MAR 9 1878 MAR 29 1879 MAR 23 1889 APR 29 1691 MAR 2 1582 APR 10 1883	-20 0 -6 31 -27
LAT:	43_3 : 89_25	FREEZE CATE DEC 29 1877 DEC 6 1878 NOV 19 1879 NOV 16 1860 NOV 20 1881 DEC 2 1883 NOV 24 1884	C.C MAX DEPTH (SQ KM) MEAN DEPTH NUMBER OF ENTRIS DEVIATION 34 11 -6-9 -9 -5 7 -10 -11	## 4.2 ## 0.0 (METERS) ## DATE MAR 9 1878 MAR 29 1879 MAR 23 1880 APR 29 1691 MAR 2 1582 APR 10 1883 APR 13 1884 APR 13 1885	-20 0 -6 31 -27 -12
LAT:	43_3 : 89_25	FREEZE CATE DEC 29 1877 DEC 6 1878 NOV 19 1878 NOV 16 1860 NOV 20 1881 DEC 2 1882 NOV 15 1883 NOV 24 1834 DEC 5 1883	O.0 MAX DEPTH (SO KM) MEAN DEPTH NUMBER OF ENTRIS DEVIATION 34 11	## 4.2 ## 0.0 (METERS) ## DATE MAR 9 1878 MAR 29 1879 MAR 23 1889 APR 29 1691 MAR 2 1682 APR 10 1883 APR 13 1884 APR 13 1885 APR 15 1386	-20 0 -6 31 -27
LAT:	43_3 : 89_25	WIS N AREA: W HISTORY FREEZE CATE DEC 29 1877 DEC 6 1873 NOV 16 1860 NOV 20 1881 NOV 20 1883 NOV 24 1883 NOV 24 1883 NOV 24 1885	O.C MAX DEPTH (SO KM) MEAN DEPTH NUMBER OF ENTRIS DEVIATION 34 11 -6 -9 -5 -7 -10 -1	## 4.2 ## 0.0 (METERS) ## DATE MAR 9 1879 MAR 29 1879 MAR 23 1890 APR 29 1691 MAR 2 1532 APR 10 1883 APR 13 1884 APR 13 1386 ***********************************	-20 -6 -31 -27 -12 15 15
LAT:	43_3 : 89_25	FREEZE CATE DEC 29 1877 DEC 6 1878 NOV 19 1878 NOV 16 1860 NOV 20 1881 DEC 2 1882 NOV 15 1883 NOV 24 1834 DEC 5 1885 NOV 24 1835 NOV 20 1837 DEC 12 1888	O.0 MAX DEPTH (SO KM) MEAN DEPTH NUMBER OF ENTRIS DEVIATION 34 11	## 4.2 ## 0.0 (METERS) ## DATE MAR 9 1878 MAR 29 1879 MAR 23 1880 APR 29 1881 MAR 2 1882 APR 13 1884 APR 13 1886 *********** APR 13 1886	-20 0 -6 31 -27 -12 15 15 17
LAT:	43_3 : 89_25	WIS N AREA: W HISTORY FREEZE CATE DEC 29 1877 DEC 6 1878 NOV 19 1879 NOV 16 1860 NOV 20 1881 DEC 2 1883 NOV 24 1883 NOV 24 1885 NOV 26 1887 DEC 12 1888	O.0 MAX DEPTH (SO KM) MEAN DEPTH NUMBER OF ENTRIS DEVIATION 34 11	## 4.2 ## 0.0 (METERS) ## DATE MAR 9 1879 MAR 29 1879 MAR 23 1890 APR 29 1691 MAR 2 1532 APR 10 1883 APR 13 1884 APR 13 1386 ***********************************	-20 0 -6 31 -27 -12 15 17 15
LAT:	43_3 : 89_25	WIS N AREA: W AREA: W AREA: W AREA: W AREA: W AREA: W AREA: W AREA: DEC 29 1877 DEC 6 1877 NOV 16 1860 NOV 20 1881 DEC 2 1883 NOV 24 1834 NOV 24 1835 NOV 24 1835 NOV 24 1835 NOV 24 1835 NOV 26 1837 DEC 12 1837 DEC 12 1837 DEC 4 1890	O.0 MAX DEPTH (SO KM) MEAN DEPTH NUMBER OF ENTRIS DEVIATION 34 11	H: 0.0 (METERS) ES: 44 THAW DATE MAR 9 1879 MAR 29 1879 MAR 23 1890 APR 29 1691 MAR 2 1692 APR 13 1884 APR 13 1884 APR 13 1886 ***********************************	-20 0 -6 31 -27 -12 15 15 17
LAT:	43_3 : 89_25	WIS N AREA: W	O.0 MAX DEPTH (SO KM) MEAN DEPTH NUMBER OF ENTRIS DEVIATION 34 11	H: 0.0 (METERS) ES: 44 THAW DATE MAR 9 1879 MAR 29 1890 APR 29 1891 APR 13 1884 APR 13 1884 APR 13 1886 ********** APR 13 1888 MAR 24 1889 MAR 24 1890 ********* APR 2 1892	-20 -6 -31 -27 -12 -15 -15 -5 -5
LAT:	43_3 : 89_25	WIS N AREA: W AREA: W AREA: W AREA: W AREA: W AREA: W AREA: W AREA: DEC 29 1877 DEC 6 1877 NOV 16 1860 NOV 20 1881 DEC 2 1883 NOV 24 1834 NOV 24 1835 NOV 24 1835 NOV 24 1835 NOV 24 1835 NOV 26 1837 DEC 12 1837 DEC 12 1837 DEC 4 1890	O.0 MAX DEPTH (SO KM) MEAN DEPTH NUMBER OF ENTRIS DEVIATION 34 11	## ###################################	-20 -6 -31 -27 -12 15 17 15 -5 -6 -7
LAT:	43_3 : 89_25	WIS N AREA: W	O.0 MAX DEPTH (SO KM) MEAN DEPTH NUMBER OF ENTRIS DEVIATION 34 11	H: 0.0 (METERS) ES: 44 THAW DATE MAR 9 1879 MAR 29 1890 APR 29 1891 APR 13 1884 APR 13 1884 APR 13 1886 ********** APR 13 1888 MAR 24 1889 MAR 24 1890 ********* APR 2 1892	-20 -6 -31 -27 -12 -15 -15 -5 -5
LAT:	43_3 : 89_25	WIS N AREA: W AREA: W AREA: W AREA: W AREA: W AREA: W AREA: W AREA: W AREA: DEC 29 1877 NOV 16 1860 NOV 20 1861 DEC 2 1883 NOV 24 1834 DEC 5 1883 NOV 24 1835 NOV 24 1835 NOV 24 1835 NOV 26 1837 DEC 12 1888 **********************************	O.C MAX DEPTH (SO KM) MEAN DEPTH NUMBER OF ENTRIS DEVIATION 34 11 -6 -9 -5 7 -10 -1 10 -1 -5 17	H: 0.0 (METERS) ES: 46 THAW DATE MAR 9 1879 MAR 29 1890 APR 29 1891 APR 13 1884 APR 13 1884 APR 13 1886 *********** APR 13 1886 ********* APR 13 1889 MAR 24 1889 MAR 24 1899 MAR 24 1899 MAR 24 1899 MAR 24 1899 MAR 30 1896	-20 0 -6 31 -27 -12 15 17 15 -5 -5 -7 -19
LAT:	43_3 : 89_25	WIS N AREA: W	O.0 MAX DEPTH (SO KM) MEAN DEPTH NUMBER OF ENTRIS DEVIATION 34 11	H: 0.0 (METERS) ES: 44 THAW DATE MAR 9 1879 MAR 29 1891 MAR 29 1891 MAR 29 1891 MAR 21 1882 APR 10 1883 APR 13 1884 APR 13 1886 ********** APR 13 1886 ******** APR 13 1988 MAR 24 1889 MAR 24 1890 ******** APR 1 1893 MAR 24 1890 MAR 2 1892 MAR 10 1894 ************************************	-20 0 -6 -31 -27 -12 15 17 15 -75 -4

		776-4- ·		· · · · · · · · · · · · · · · · · · ·		
 -		FREEZE 0		DEVIATION	THAW DATE	DEVIATIO
		NOV 27 NOV 20	1916		******	: **
<u>. </u>		*****			######################################	
		NOV 29	1928		/ MAR 25 192	9 -4
		NOV 17	1929		######################################	
		*****	***		MAR 24 193	
	· · · · · · · · · · · · · · · · · · ·	************	***		APR -10193	
		NOV 25	1938	o	MAR 21 193 MAR 25 193	
		******** NOV 13	**** 1940	• • •	APR 9 194	0 11
		******		-12	########### MAR 24 194	
,	,		1544	7	MAR 17 194	5 -12
		NOV 24 —******	1945	-1	MAR 20 194 MAR 26 194	
			1948	12	MAR 27 194	9 -2
			1949 1950		APR 7 195 APR 9 195	
		NOV 28	1952	- 3	******	_
			1 \$58 1 95 9		*****	
	TOTAL	32	* 474	-10	********** 32	*
	EARLY LATE	NOV - 2			——MAR 2	
	MEAN	DEC 29 NOV 25		10.29	APR 29 MAR 29	12.10
182.	NAME OF LAKE		GO	ID CODE	: 140313	
	L-AT-:44(₩ IS N	E.A.:	-557+52MAX DEP	THI	
<u> </u>	LONG: 88 24	₩		(SQ KM) MEAN DE	PTH: 4.7 (METERS)	
	FREEZE/THAW	HISTORY		NUMBER OF ENT	RIES: 3	
		FREEZELD	4.T.E	DEVIATION	THAW DATE	DEVIATIO
		非主义主义北京 中	***		APR 2 195	7 -6
	·····		1 957 1 958		APR 5 195	
	TOTAL	2		7	3	9
	EARLY LATE	NOV 29 DEC 7			APR 2 AFR 17	
	MEAN .	OEC 3		4.00	APR 8	6.48
183.	NAME OF LAKE	THOME	<u> </u>			
	STATE/PROV:	WIS			147353	
	LAT: 45 32 LUNG: 92 23	N ARE	A:	7.21 MAX DEP (SQ KM) MEAN DE	TH: 13.1 PTH: 0.0 (METERS)	
	FREEZE/THAW	HISTORY		NUMBER OF ENT	·	
		· · · · · · · · · · · · · · · · · · ·				
		FREEZE DA		DEVIATION	THAW DATE	DEVIATION
	TOTAL	NOV 23 1	933	0	**************************************	t
		-NOV-23			*****	
	LATE Mean	NOV 23 NOV 23		0.0	* ****	^ ^
					******	0.0
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	STATE/	PROV:	wis	3			140373	
	LAT:	42 41	l N	AREA:	1.60	MAX DEPTH:	13.4	
	FONG.	50 1:	3 ₩		(SQ KM)	MEAN DEP IH	(METERS)	
	FREEZE	/THAW	нтетп	RY	NUMBI	ER OF ENTRIE	~	
					1101101		· · · ·	
				ZE DATE		VIATION	THAW DATE	DEVIATIO
	_		NOV	22 1955		0	APR 1 1955 *********	U
		OTAL ARLY		22			APR -1	
	L	ATE	NOV	22		• 0	APR 1	
		======					APK 1 	0 • 0
185.	NAME D	PROV:	WIS	:		ID CODE: 1		
	LAT:	42 42	? N	AREA:	0.16	MAX DEPTH: MEAN DEPTH	8.3	
	LONG:	88 8	· W		(SQ KM)	MEAN DEPTH	i. 0.0 .(Meters)	
	FREEZE	/THAW	ніѕто	RY ·	NUMBS	R OF ENTRIES	S: 1	
_							•	•
			NOV	ZE DATE 7 1955		/IATION 0	THAW DATE ********	DEVIATIO
·		OTAL ARLY	1- NOV			•	O	
	L.	ATE	NOV	7			****	
	—————	E AN	NOV	- 	················	. 0	****	· · · · · · · · · · · · · · · · · · ·
186.	NAME O				<u></u>	ID CODE: 1	.40453	•••
	LAT:	46 14	N	AREA:	5.80	MAX DEPTH:	14.5	•
	LONG:	89 15	W		(SQ KM)	MEAN DEPTH:	: 0.0 (METERS)	
	FREF/F	/THΔu	HISTO	RY	MILMAR	ER OF ENTRIES		
	111444	7 1 1 1 1 1		N I	NOMBE	N OF ENTRIES	1	
				ZE DATE		/IATION	THAW DATE	DEVIATIO
		TAL	1			0	*******	
		ARLY ATE	NOV				*****	
		AN	VEV		0.	0	***	0.0
187.	NAME OF	- LAKE	: PFW	AUKĒĒ		ID CODE: 1	40473	
	STATE/		-WIS		10.10			
	LONG:	ุธิธี 17		ARCA.	(SO KM)	MAX DEPTH: MEAN DEPTH:	13.7 : 3.9	
							(METERS)	
	_FREEZE	/THAw	HISTO	RY	NUMBE	R.OE. ENTRIES	51 1	
		<u></u>	FREE	ZE DATE	DEV	/IATION	THAW DATE	DEVIATIO
	·	TAL	****	*****			APR 1 1955	0
	E,	ARLY	***	•			APR 1	
		ATEL EAN	· 李克克克 · 李本本本			o	"APR 1 . APR 1	0.0
							-	

188.	NAME-OF-LAKE:-PINE	
	LAT: 43 7 N AREA: 2.85	
	LUNG: E8 23 W (SQ KN	MEAN DEPTH: 12.1 (METERS)
	FREEZE/THAW HISTORY NL	MBER OF ENTRIES: 0
189.	NAME OF LAKEL MODELLE OF	
	STATE/PROV: WIS	ID CODE: 140491
	LAT: 43 9 N AREA: 1.77 LONG: 88 23 W (SQ KM	
		(METERS)
	FREEZE/THAW HISTORY . NU	MBER OF ENTRIES: 0
**		
190 .	NAME OF LAKE; NORTH(WEST)	
	STATE/PROV: WIS LAT: 43 9 N AREA: C.47	

		(METERS)
	FREEZE/THAW HISTORY NU	MBER OF ENTRIES: 0
		<u></u>
·		
191.	NAME OF LAKE: OKAUCHEE	ID CODE: 140511
	STATE/PROV: WIS	MAX DEPTH: 25.6
	LONG: 85 26 W (SO KM) MEAN DEP 14: 12.1
	FREEZE/THAW HISTORY NU	
	Not	MBER OF ENTRIES: 0
102	NAME OF LAKE OCCUPATION	
	NAME DE LAKE: OCONOMOWOC(MAIN) STATE/PROV: WIS	
	LAT: 43 6 N AREA: 3.10	MAX DEPTH: 13.5
	TO THE STATE OF TH	(METERS)
,	FREEZETHAW HISTORY NUM	MBER OF ENTRIES: TO 0
	NAME OF LAKE: FOWLER	ID COSEL 14032
193 -	STATE/PROV: MIS	ID CODE: 140531
193.	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	
193.	LAT: 43 7 N AREA: 0.34 LONG: 88 30 W (SQ KM)	MAX DEPTH: 15.2 MEAN DEPTH: 4.4
193.	STATE/PROV: wis LAT: 43 7 N AREA: 0.34 LONG: 88 30 W (SQ KM)	MAX DEPTH: 15.2 MEAN DEPTH: 4.4 (METERS)
193.		MAX DEPTH: 15.2 MEAN DEPTH: 4.4 METERS) MBER OF ENTRIES: 0
193.		
193.		
	FREEZE/THAW HISTORY NUM	MBER OF ENTRIES: 0
.94.	NAME OF LAKE: LAC LA BELLE STATE/PROV: WIS	MBER OF ENTRIES: 0
.94.	NUM NAME OF LAKE: LAC LA BELLE STATE/PROV: WIS LAT: 43 8 N AREA: 4.53	ID CODE: 140541
.94.	NUM NAME OF LAKE: LAC LA BELLE STATE/PROV: WIS LAT: 43 8 N AREA: 4.53	MBER OF ENTRIES: 0

	· · · · · · · · · · · · · · · · · · ·	
95.	NAME OF LAKE: SILVER STATE/PROV: WIS	•
	LAT: 43 5 N AREA: 0.90 LONG: 88 30 W (SQ KM	MAX DEPTH: 13.4
	LUNG: 88 30 W (SQ KM) MEAN DEPTH: 4.8 (METERS)
	EDEETS ATMAND ALCTORY	
	FREEZE/THAW HISTORY NU	MBER OF ENTRIES: 0
96.	STATE/PROV: WIS	
	LAT: 42 37 N AREA: 8.39 LONG: 88 36 W (SQ KM	MAX DEPT 17.2
	LUNG: 88 36 W (SU KM	MEAN DEPIA: 8.0
	FREEZE/THAW HISTORY NU	MBER OF ENTRIES: 0
. 7	NAME OF LAKE: GREEN	1-p
•	STATE/PROV: WIS	
	LAT: 43 45 N AREA: 29.72 LUNG: 89 0 W (SQ KM	MAX DEPTH: 72.2 MEAN DEPTH: 33.1
		(METERS)
	FREEZE/THAW HISTORY NU	MBER OF ENTRIES: 0
•	*	
ว ผ 	NAME OF LAKE: BEULAH(48ASINS)	ID CONT. 140501
	STATE/PROV: WIS	10 64051 140001
	NAME OF LAKE: BEULAH(4BASINS) .STATE/PROV: WIS LAT: 42 49 N AREA: 3.39 LUNG: 88 23 W (SQ KM)	MAX DEPTH: 17:7) MEAN DEPTH: 8:0
		(METERS)
	FREEZE/THAW HISTORY NU	MBER OF ENTRIES: 0
	· · · · · · · · · · · · · · · · · · ·	
99	NAME OF LAKE: BIG CEDAR	10 cope: 140591 ·
	STATE/PROV: WIS	MAY DEDILL 21 2
	LAT: 43 23 N AREA: 3.87 LONG: 88 16 W (SQ KM)) MEAN DEP TH: 11.1
		(METERS)
	FREEZE/THAW HISTORY NUM	
	· · · · · · · · · · · · · · · · · · ·	
10 .		ID CDDE: 140611
	LSTATE/PROV: WIS 4.07	and the second of the second o
	LUNG: 90 31 W (SQ KM)	MEAN DEPTH: 0.0
		(ME TERS)
	FREEZE/THAW HISTORY NUM	ABER OF ENTRIES:O
1	NAME DE LAKE: BEAR	10 CODE: 140521
	STATE/PROV: WIS LAT: 45 38 N AREA: 5.50	MAX DEPTE: 26.5
	LONG: 91 49 W (SQ KM)	MAX DEPTH: 26.5 MEAN DEPTH: 0.0
	COMO: 31 43 M (20 VW)	(METERS)

			•	
02.	NAME OF CAKE: PRAIRIE STATE/PROV: WIS		ID CODE: 140531	
	LAT: 45 22 N AREA:	6.21	MAX DEPTH: 4.9	
	LAT: 45 22 N AREA: LONG: 91 41 W	(SQ KM)	MEAN DEP 1H: 0.0	
			(METERS)	
	FREEZE/THAW HISTORY	NUMB	ER OF ENTRIES: 0	
			· 	
33.	NAME OF LAKE: RED CEDAR -STATE/PRUV: WIS-		ID CODE: 140541	
		7.46	MAX DEPTH: 15.2	
	LAT: 45 36 N AREA: LONG: 91 35 W	(SQ KM)	MEAN DEP TH: 0.0	
	FREEZEZTHAW HISTORY	NUMB		
				 -
04.	NAME OF LAKE: LOWER EAU	CLAIRE	TD-C002: 140651	-
	STATE/PROV: WIS LAT: 46 16 N AREA:	3.31	MAX DEPTH: 12.8	
	LAT: 46 16 N AREA: LONG: 91 33 W	(SO KM)	MEAN DEPTH: 0.0 (METERS)	
· . -	FREEZE/THAW HISTORY	*		
	TRUEZEZ TRAN TITSTORT	NOMO	ER OF ENTRIES: 0	
)5.	NAME OF LAKE: MIDDLE EAU		· · · · · · · · · · · · · · · · · · ·	
	···SIATEZPROV: WIS			
	LAT: 45 18 N AREA: LONG: 91 31 W	3.05 (SQ KM)	MAX DEPTH: 1948 Mean Depth: 3.0	
			(METERS)	-
	FREEZE/THAW HISTORY	NUMBE	R OF ENTRIES: 0	
	······································	· · · · · · · · · · · · · · · · · · ·		
) 6 .	NAME JE LAKE: NAMEKAGON	·	1D CODE: 143671	
	STATE/PROV: wis			
	LAT: 46 12 N AREA: LONG: 91 7 W	(SQ KM)	MAX DEPTH: 14.0	
			(METERS)	
	FREEZE/THAW HISTORY	NUMBS	R OF ENTRIES: 0	
7.	NAME OF LAKE: UPPER EAU C	LAIRE	ID CODE: 140691	
·	_STATE/PROV:\wis	6.17		
	LONG: 91 29 W	(SQ KM)	MEAN DEPTH: 25.5 MEAN DEPTH: 0.0	
	FREEZE/THAW HISTORY	NUMBS	t in the terror	
	• .			
8.	NAME OF LAKE: BIG SAND		ID CODE: 140711	
8.	STATE/PROV: WIS LAT: 45 50 N AREA:	5•67	MAX DEPTH: 16.8	
8.	STATE/PROV: WIS		MAX DEPTH: 16.8	

209.								
209.								
	NAME OF LAKE: C STATE/PROV: W	1 I S						
	LAT: 45 48 N	AREA:	4.88	TABG XAM	F:	3.4'		
	LUNG: 92 20 W		(SQ KM)	MEAN DEP	TH:	O.O TERSI		
	FREEZE/THAW HIS	Tany	B.44.44CO					
	FREEZEVIDAN DIS	HURT	NUMB	ER OF ENTR	153:	O		
	7			· · · · · · · · · · · · · · · · · · ·		·		
210 -	NAME OF LAKE: Y				1037		•	
	-STATE/PROV: W	IS		10 6305:	1497	31		
	LAT: 45 55 N	AREA:	9.26	MAX DEPT	f:	9.8		
·	NAME OF LAKE: Y STATE/PROV: w LAT: 45 55 N LONG: 92 24 W		(SQ KM)	MEAN JEP	H: (ME	J.U TERS)		
	FREEZE/THAW HIS							
•	TING CEC P. W	(DD4		ER OF SNIR	103.	J.		
211-	NAME OF LAKE: L	ANG				51		
	STATE/DOOD	1 C						
	LAT: 45 15 N LONG: 91 24 W	ARĒA:	4.30	MAX DEPT	F: 2	9.2		
	CONG. 91 24 W		(SU KM)	MEAN DEP	⊒H : - (.4£	O.Q TERS)		
	FREEZE/THAW HIS	TOON						
	FREEZEZITAW NIS	IURY	NUMBE	ER OF ENTR	IdS:	Û		
213.	NAME OF LAKET A							
	NAME OF LAKE: W STATE/PROV: W LAT: 44 57 N LONG: 91 20 W	.IS		10 (00:	1437	5I		
	LAT: 44 57 N	ARE A:	25.50	MAX DEPT	F: 2	2.0		
	COMO. 31 SO M		(SU KM)	MEAN DEP	ini: - (M €	♥•₽ T£RS>-	····	
	FREEZE/THAW HIS	TOO	NIA CLACO E					
					<u> </u>	<u> </u>		
						71		<u> </u>
21 3.	NAME OF LAKE: AF	450102 ·				-		
	NAME OF LAKE: AF	1.5						
	STATE/PROV: w	1.5			F: 11	7-1		
	NAME UF LAKE: AF STATE/PROV: W LAT: 44 26 N LONG: 90 42 W	1.5		HAZ DEPTI	11 TH: (ME	7•1 0•0 TERS)		
	STATE/PROV: W LAT: 44 26 N LONG: 90 42 W	AREA:	3.32 (SQ KM)	MAX DEPTI MEAN DEP	(ME	TERS)		
	STATE/PROV: w	AREA:	3.32 (SQ KM)	MAX DEPTI MEAN DEP	(ME	TERS)		
	STATE/PROV: W LAT: 44 26 N LONG: 90 42 W	AREA:	3.32 (SQ KM)	MAX DEPTI MEAN DEP	(ME	TERS)	· ·· · ·	
	STATE/PROV: W LAT: 44 26 N LONG: 90 42 W	AREA:	3.32 (SQ KM)	MAX DEPTI MEAN DEP	(ME	TERS)	· ··	
214.	STATE/PROV: W LAT: 44 26 N LONG: 90 42 W FREEZE/THAW HIST	TORY	3.32 (SQ KM)	MAX DEPTI MEAN DEP R OF ENTR	(ME 1ES:	0 	<u>.</u>	
214.	STATE/PROV: W LAT: 44 26 N LONG: 90 42 W FREEZE/THAW HIST NAME OF LAKE: FO STATE/PROV: W	TORY	3.32 (SQ KM)	R OF ENTR	(ME 1ES:	0 0	<u></u>	
214.	STATE/PROV: W LAT: 44 26 N LONG: 90 42 W FREEZE/THAW HIST	TORY	3.32 (SQ KM) NUMBE	MAX DEPTI	(ME IES: 1408	0 	<u>.</u>	
214.	STATE/PROV: W LAT: 44 26 N LONG: 90 42 W FREEZE/THAW HIST NAME OF LAKE: FO STATE/PROV: W LAT: 43 35 N	TORY	3.32 (SQ KM)	THE CODE:	(ME 1ES: 1408	0 	······································	
214.	STATE/PROV: W LAT: 44 26 N LONG: 90 42 W FREEZE/THAW HIST NAME OF LAKE: FO STATE/PROV: W LAT: 43 35 N LONG: 98 56 W	TORY	3.32 (SQ KM) NUMBE	THE CODE: CODE: CHECKAM CHECKAM CHECKAM CHECKAM	(ME 1ES: 1408 -: (ME	01 5.8 0.c TERS)-	·· ·· ·- ·- ·- ·- ·- ·- ·- ·- ·- ·- ·- ·	
214.	STATE/PROV: W LAT: 44 26 N LONG: 90 42 W FREEZE/THAW HIST NAME OF LAKE: FO STATE/PROV: W LAT: 43 35 N	TORY	3.32 (SQ KM) NUMBE	THE CODE: CODE: CHECKAM CHECKAM CHECKAM CHECKAM	(ME 1ES: 1408 -: (ME	01 5.8 0.c TERS)-	· · · · · · · · · · · · · · · · · · ·	
214.	STATE/PROV: W LAT: 44 26 N LONG: 90 42 W FREEZE/THAW HIST NAME OF LAKE: FO STATE/PROV: W LAT: 43 35 N LONG: 98 56 W	TORY	3.32 (SQ KM) NUMBE	THE CODE: CODE: CHECKAM CHECKAM CHECKAM CHECKAM	(ME 1ES: 1408 -: (ME	01 5.8 0.c TERS)-	· · · · · · · · · · · · · · · · · · ·	
214.	STATE/PROV: W LAT: 44 26 N LONG: 90 42 W FREEZE/THAW HIST NAME OF LAKE: FO STATE/PROV: W LAT: 43 35 N LONG: 98 56 W	TORY	3.32 (SQ KM) NUMBE	THE CODE: CODE: CHECKAM CHECKAM CHECKAM CHECKAM	(ME 1ES: 1408 -: (ME	01 5.8 0.c TERS)-		
214.	STATE/PROV: W LAT: 40 26 N LONG: 90 42 W FREEZE/THAW HIST NAME OF LAKE: FO STATE/PROV: W LAT: 43 35 N LONG: 98 56 W FREEZE/THAW HIST	TORY TORY TORY TORY	3.32 (SQ KM) NUMBE	MAX DEPTI MEAN DEPTI R OF ENTR ID CODE: MAX DEPTI MEAN DEPTI R OF ENTR	(ME 1ES: 1408 -: (ME	01 01 5.8 0.0 TERS)		
214.	STATE/PROV: W LAT: 40 26 N LONG: 90 42 W FREEZE/THAW HIST NAME OF LAKE: FO STATE/PROV: WI LAT: 43 35 N LONG: 98 56 W FREEZE/THAW HIST NAME OF LAKE: 94 STATE/PROV: WI	TORY TORY TORY AREA:	3.32 (SQ KM) NUMBE	ID CODE: ID CODE: ID CODE: ID CODE: INTRE TO REM	1408 1408 1408 1H: (ME	01 01 5.8 0.0 TERS)-0		
214.	STATE/PROV: W LAT: 40 26 N LONG: 90 42 W FREEZE/THAW HIST NAME OF LAKE: FO STATE/PROV: W LAT: 43 35 N LONG: 98 56 W FREEZE/THAW HIST NAME OF LAKE: 94 STATE/PROV: WI LAT: 46 13 N	TORY TORY TORY AREA:	3.32 (SQ KM) NUMBE	ID CODE: ID CODE: ID CODE: ID CODE: INTRE TO REM	1408 1408 1408 1H: (ME	01 01 5.8 0.0 TERS)-0		
214.	STATE/PROV: W LAT: 40 26 N LONG: 90 42 W FREEZE/THAW HIST NAME OF LAKE: FO STATE/PROV: WI LAT: 43 35 N LONG: 98 56 W FREEZE/THAW HIST NAME OF LAKE: 94 STATE/PROV: WI	TORY TORY TORY AREA:	3.32 (SQ KM) NUMBE	MAX DEPTI MEAN DEPTI R OF ENTR ID CODE: MAX DEPTI MEAN DEPTI R OF ENTR	(ME 1ES: 1408: :: (ME	01 5.8 0.c TERS)		
214.	STATE/PROV: WLAT: 40 26 N LONG: 90 42 W FREEZE/THAW HIST NAME OF LAKE: FOR STATE/PROV: WE LAT: 43 35 N LONG: 98 56 W FREEZE/THAW HIST NAME OF LAKE: 94 STATE/PROV: WI LAT: 46 13 N LONG: 91 53 W	TORY TORY TORY AREA: AREA: ARDON IS AREA:	3.32 (SQ KM) NUMBE 10.63 (SQ KM) NUMBE	MAX DEPTI	1408: 1408: 1408: 1408: 1408:	01 5.8 0.c TERS)- 0		
214.	STATE/PROV: W LAT: 40 26 N LONG: 90 42 W FREEZE/THAW HIST NAME OF LAKE: FO STATE/PROV: W LAT: 43 35 N LONG: 98 56 W FREEZE/THAW HIST NAME OF LAKE: 94 STATE/PROV: WI LAT: 46 13 N	TORY TORY TORY AREA: AREA: ARDON IS AREA:	3.32 (SQ KM) NUMBE 10.63 (SQ KM) NUMBE	ID CODE: ID CODE: ID CODE: ID CODE: INTRE TO REM	1408: 1408: 1408: 1408: 1408:	01 5.8 0.c TERS)		PAGE

		,
10.	NAME OF LAKE: NEBAGAMON	ID CODE: 140341
	STATE/PROV: WIS	MAX DEPTH: 17-1
	LONG: 91 43 W (SO KM)	MEAN DEPIH: 0.0 (METERS)
	TOTAL TIME INCOME.	BER OF ENTRIES: 0
	FREEZE/THAW HISTORY NUM	BER OF ENTRIES. 0
17.	NAME OF LAKE: ST CROIX FLOWAGE	ID CODE: 143851
	STATE/DOOV! - WIS	The state of the s
	LAT: 46 15 N AREA: 7.75 LONG: 91 52 W (SQ KM)	MAX DEPTH: 8.5 MEAN DEPTH: 0.0
	FREEZE/THAW HISTORY NUM	IDER OF ENTRIES.
2137	STATE/PROV: WIS	10 C002: 140891
	LAT: 44 49 N AREA: 3.40	MAX DEPTH: 7.6 MEAN DEPTH: 0.0
	LONG: 91 26 W (SQ KM)	MEAN DEPIH: 0.0 (METERS)
	FREEZE/THAW HISTORY NUM	ABER OF ENTRIES: 0
		
219.	NAME OF LAKE: EAU CLAIRE STATE/PROV: WIS	ID CDDE: 140891
	LAT: 44 46 N AREA: 4.03	MAX DEPTH: 7.5
	Lang: 91 6 W (50 KM)) MEAN DEP H: 0.0 (METERS)
	FREEZE/THAW HISTORY NUM	MBER OF ENTRIES: 0
		-
220	NAME OF LAKE: BUTTERNUT STATE/PROV: WIS	
	LAT: 45 55 N AREA: 5.24 LONG: 89 0 W (SQ KM)	MAX DEPTH: 12.8 MEAN DEPTH: 0.0
	FORGE DE OR COM PART	(METERS)
	FREEZE/THAW HISTORY NUM	MBER OF ENTRIES: 0
221.	NAME OF LAKE: FRANKLIN	ID CODE: 140911
	_STATE/PROV: _ WIS LAT: 45 56 N AREA: 3.51 LONG: 89 0 W (SQ KM)	MAX DEPTH: 16.2) MEAN DEPTH: 0.0 (METERS)
	FREEZE/THAW HISTORY NU	(MEIERS)
	1 NULLELY (1000) 114 9 10 N1	
	— <u> </u>	
555 •	STATE/PROV: WIS	10 CODE: 140921
	LAT: 45 59 N AREA: 4.03	MAX DEPTH: 12.2) MEAN DEP TH: 0.0
	LONG: 89 0 W (SO KM	MEAN DEP TH: 0.0 (METERS)
		and the second of the second o

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23.	NAME OF LAKE: PINE	10-C0):: 140941
	STATE/PROV: WIS	
	LONG: 88 59 W	6.76 MAX DEPT F: 4.3 (SQ KM) MEAN DEP 1H: 0.0 (METERS)
	FREEZE/THAW HISTORY	NUMBER OF ENTRIES: 0
-		
224.	NAME OF LAKE: KOSHKONING -STATE/PROV: WIS-	ID CODE: 140951
	LAT: 42 52 N AREA: LONG: 98 58 W	42.35 MAX DEPTH: 2.1 (SQ KM) MEAN DEPTH: 0.0
	FREEZE/THAW HISTORY	NUMBER OF ENTRIES: 0
25	NAME OF LAKE: CALEPON FAI	LUS RE 1D CODE: 140961
	STATE/PROV: wis	
	LAT: 45 21 N AREA: LONG: 88 15 W	4.12 MAX DEPTH: 12.2 (SQ KM) MEAN DEPTH: 0.0 (METERS)
	FREEZE/THAW HISTORY	NUMBER OF ENTRIES: 0
226.	NAME OF LAKE: HIGH HALLS	RESER ID CODE: 140971
	_STATE/PROV:wis	6.07 MAX DEPTH: 16.5
	LONG: 38 11 W	(SQ KM) MEAN DEP TH: 0.0
·/	FREEZE/THAW HISTORY	NUMBER OF ENTRIES: 0
2.0.2	ALAM C-45C Aviir CI-CAC	
221.	STATE/PROV: WIS	TD-C335: 140991
	LAT: 45 52 N AREA: LONG: 89 38 W	4.25 MAX DEPTH: 30.5 (SQ KM) MEAN DEPTH: 0.0 (METERS)
	FREEZE/THAW HISTORY	NUMBER OF ENTRIES: 0
228•	NAME OF LAKE: PELICAN	
. ,,,,,,,	LAT: 45 30 N AREA: LONG: 89 12 W	14.52 MAX DEPTH: 11.9 (SQ KM) MEAN DEP TH: 0.0
		(METERS)
	FREEZE/THAW HISTORY	NUMBER OF ENTRIES: 0
29•	NAME-OF LAKE: SQUIRREL	ID-CODE: 141021
	STATE/PROV: WIS LAT: 45 52 N AREA:	
	LONG: 89 54 W	(SO KM) MEAN DEP TH: 0.0
		(METERS)
	FREEZE/THAW HISTORY	NUMBER OF ENTRIES: 0

230 •	NAME UF LAKE: TOMAHAWK STATE/PROV: WIS		ID CODE: 141031		
	LAT: 45 50 N AREA	: 14.70			
	LONG: 89 40 W	(SQ KM)	MEAN DEPTH: 0.0		······································
	FDFF3F (TILL		(METERS)	
	FREEZE/THAW HISTORY	NUMBI	ER OF ENTRIES: 0		
231.	NAME OF LAKE: THUNDER		ID COSE		
	STATE/PROV:wis		ID CODE: 141041		
	LAT: 45 47 N AREA LONG: 89 13 W	7.16 (SQ KM)	MEAN DEPTH: 0.0		
	FREEZEZTHAW HISTORY	ALL LINE	(METERS		
	FREEZE/THAW HISTORY	NUMBE	ER UF ENTRIES: 0		
					
32.	NAME UF LAKE: BALSAM STATE/PROV: WIS		10 CODE: 141051	•	
	LAT: 45 28 N AREA	8.31	MAX DEPTH: 11.3		
	LONG: 92 26 W	(SQ KM)	MAX_DEPTH:11.3 MEAN_DEPTH:0.0 (METERS:)	
	FREEZE/THAW HISTORY	NUMBE	R OF ENTRIES: 0	<u> </u>	• •
· · ·			-		~
33 . 	-STATE/PROV:WIS		ID CODE: 141061		
	AREA:	4.11 (SQ KM)	MAX DEPTH: 5.2 MEAN DEPTH: 0.0		
	505555 (T)				
	FREEZE/THAW HISTORY	NUMBE	R OF ENTRIES: 0		
		_ 	·		
34.	NAME OF LAKE: CEDAR				
	SINITION WIS		10 0005: 141071		
	LAT: 43 13 N AREA: LONG: 92 35 W	4 • 45	_MAX_DEPTH: 9.8		
		(SQ KM)	MEAN DEPTH: 0.0 (METERS)		
	FREEZE/THAW HISTORY	NUMRE	R OF ENTRIES: 0		
			0 61417.4231 0		
					·
5.	NAME OF LAKE: WAPOGASSET		ID CODE: 141081		
	LAT: 45 20 N AREA:	4.80	MAX DEPTH: 9.8	-	
	LONG: 92 26 W	(SQ KM)	MEAN DEP 1H: 0.0		
	FREEZE/THAW HISTORY	NIMPER			
		<u> </u>	R OF ENTRIES: 0		
	NAME OF LAKE: PIKE STATE/PROV: WIS		10 CODE: 141091 -		
	LAT: 45 54 N AREA:	2.99	MAX DEPTH: 7.6 MEAN DEP H: 0.0		
	F01141 30 # W	(SQ KM)	MEAN DEP 1H: 0.0 (METERS)		

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237.	NAME OF LAKE: ISLAND	ID CODE: 141121
-	STATE/PROV: WIS LAT: 45 19 N AREA:	
- 	LONG: 91 23 W	(SQ KM) MEAN DEP 1H: 0.0
		(METERS)
	FREEZE/THAW HISTORY	NUMBER OF ENTRIES: 0
238.	STATE/PROV: WIS	ID CODE: 141131
	LAT: 43 37 N AREA: LONG: 90 6 W	2.43 MAX DEPTH: 12.2 (SQ KM) MEAN DEPTH: 0.0
		(METERS)
	FREEZE/THAW HISTORY	NUMBER OF ENTRIES: 0
		
239.	NAME OF LAKE: GRIND STONE	10 CODE: 141141
	STATE/PROV: WIS LAT: \$5 56 N AREA:	12.60 MAX DEPT : 18.0
	LONG: 91 25 W	(SQ KM) MEAN DEP 1H: 0.0 (METERS)
	FREEZE/THAW HISTORY	NUMBER OF ENTRIES: 0
	TREEZE/THAW HISTORY	NOMBER OF ENTRIES: 0
240.	NAME DE LAKELLAC COURT O	OREILL ID CODE: 141151
	.STATE/PROV1wis	
	LAT: 45 54 N AREA: LUNG: 91 26 W	20.40 MAX DEPTH: 27.4 (SQ KM) MEAN DEPTH: 0.0
		(METERS)
	FREEZEZTHAW HISTORY	NUMBER OF ENTRIES: 0
241.	NAME OF LAKE: CHSTEC	10 CODE: 141161
	STATE/PROV: WIS LAT: 45 42 N AREA:	
·····	LONG: 91 30 W	(SO KM) MEAN DEPTH: 0.0
		(METERS)
	FREEZE/THAW HISTORY	NUMBER OF ENTRIES: 0
····		,
242.	NAME OF LAKE: CHIPPEWA STATEZPROV: WIS	ID CODE: 141171
	LAT: 43 56 N AREA:	
	LONG: 91 10 W	(SQ KM) MEAN DEPTH: 0.0
	FREEZE/THAW HISTORY	NUMBER OF ENTRIES: 0
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243-	NAME OF LAKE: LOST-LANO	ID CODE: 141181
	STATE/PROV: WIS LAT: 46 6 N AREA:	5+29 MAX DEPTH: 6-4
	LONG: 91 9 W	(SQ KM) MEAN DEP H: 0.0
		(METERS)
	FREEZE/THAW HISTORY	NUMBER OF ENTRIES: 0

	V.		
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244	NAME OF TAKE: MOOSE		ID CODE: 141191
	STATE/PROV: wis		
	LAT: 46 1 N AREA: LDNG: 91 2 W	5.75 (SQ KM)	MAX DEPTH: 6.4 MEAN DEPTH: 0.0
		•	(METERS)
	FREEZE/THAW HISTORY	NUMBE	R OF ENTRIES: 0
245.	-STATE/PROV: WIS		ID CODE: 141201
	LAT: 46 5 N AREA: LONG: 91 23 W	10.15	MAX DEPTH: 10.1 MEAN DEPTH: 0.0
	CUNG. 91 23 W	(SU KM)	MEAN SEPIR: USC
	FREEZE/THAW HISTORY	NUMBE	R OF ENTRIES: 0
			The state of the s
245.	NAME OF LAKE: ROUND		TD CODE: 101211
	STATE/PROV: WIS LAT: 46 1 N AREA:	11.30	MAX DEPTH: 21.0
,	LAT: 46 1 N AREA: LONG: 91 19 W	(SO KM)	MEAN DEP 1H: 0.0
			(METERS)
	FREEZE/THAW HISTORY	NUMBE	R OF ENTRIES: 0 .
247.	NAME OF LAKE: SPIDER		ID CODE: 141221
	-STATE/PROV: WIS-	··	
	LAT: 46 6 N AREA: LONG: 91 14 W	(SQ KM)	MAX DEPTH: 1945 MEAN DEPTH: 0.0
			(METERS)
	FREEZE/THAW HISTORY	N ÚMBE	R OF ENTRIES: 0
	·		•
76F.	NAME OF LAKE: TEAL		ID CODE: 181231
240	STATE/PROV: wis		
	LAT: 46 5 N AREA:	4.25 (SQ KM)	MAX DEPTH: 9.5 MEAN DEPTH: 0.0
	20/12/1	COG TOTAL	(METERS)
	FREEZE/THAW HISTORY	NUMBE	R OF ENTRIES: 0
		•	
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<u></u>		·— 	
	NAME OF LAKE: SHAWANO		ID CODE: 141241
	STATE/PROV: WIS AREA:	25.00	MAX DEPTH: 12.8
	STATE/PROV: WIS	25.00 (SQ KM)	MAX DEPTH: 12.8
	STATE/PROV: WIS LAT: 44 48 N AREA: LONG: 88 32 W	(SQ KM)	MAX DEPTH: 12.8 MEAN DEPTH: 0.0 (METERS)
	STATE/PROV: WIS AREA:	(SQ KM)	MAX DEPTH: 12.8
	STATE/PROV: WIS LAT: 44 48 N AREA: LONG: 88 32 W	(SQ KM)	MAX DEPTH: 12.8 MEAN DEPTH: 0.0 (METERS)
	STATE/PROV: WIS LAT: 44 48 N AREA: LONG: 88 32 W	(SQ KM)	MAX DEPTH: 12.8 MEAN DEPTH: 0.0 (METERS)
	STATE/PROV: WIS LAT: 44 48 N AREA: LONG: 88 32 W	(SQ KM) NUMBE	MAX DEPTH: 12.8 MEAN DEPTH: 3.0 (METERS) R OF ENTRIES: 0
	STATE/PROV: WIS LAT: 44 48 N AREA: LONG: 88 32 W FREEZE/THAW HISTORY NAME OF LAKE: BIG ST GERM STATE/PROV: WIS	(SQ KM) NUMBE	MAX DEPTH: 12.8 MEAN DEPTH: 0.0 (METERS) R OF ENTR LES: 0
	STATE/PROV: WIS LAT: 44 48 N AREA: LONG: 88 32 W FREEZE/THAW HISTORY NAME OF LAKE: BIG ST GERM	(SQ KM) NUMBE	MAX DEPTH: 12.8 MEAN DEPTH: 0.0 (METERS) R OF ENTR LES: 0
	STATE/PROV: WIS LAT: 44 48 N AREA: LONG: 88 32 W FREEZE/THAW HISTORY NAME OF LAKE: BIG ST GERM STATE/PROV: WIS LAT: 45 56 N AREA:	(SQ KM) NUMBE	MAX DEPTH: 12.8 MEAN DEPTH: 3.0 (METERS) R OF ENTRIES: 0

251 •	NAME OF LAKE: BIG MUSKELL	UNGE	10 CODE: 141251	
	STATE/PROV: WIS Lat: 46 1 N ' Area:	3.74	MAX DEPTH: 19.8	
	LONG: 89 37 W	(SQ KM)	MEAN DEP 1H: 0.0	
			(METERS)	
	FREEZE/THAW HISTORY	NUMBE	R OF ENTRIES: 0	
	NAME OF LAKE: BIG SAND		ID CODE: 141271	
	…STATE/PROV: WIS LAT: 45 & N AREA:	5.70	MAX DEPTH: 19.7	
	LUNG: 88 59 W	(SQ KM)	MEAN DEPTH: 0.0	
		-	(METERS)	
	FREEZE/THAW HISTORY	NUMBE	R OF ENTRIES: 0	
		<u> </u>	M15E444	
253 .	NAME OF LAKE: CRAWLING ST	ONE	-10-cn05: 141291	
	STATE/PROV: WIS			
	LAT: 46 56 N AREA: LONG: 89 53 W	5.94 (SQ KM)	MAX DEPTH: 24.4 MEAN DEPTH: 2.0	
			(METERS)	
	FREEZE/THAW HISTORY	NUMBE	R OF ENTRIES: 0	
254	NAME OF LAKS: ESNOE		ID CONF. 111301	
_ J.~ •	STATE/PROV: wis		10 0002. 141501	
	LAT: 45 57 N AREA: LONG: 89 51 W	13.52 (SQ KM)	MAX DEPIF: 25.3	
		130 1017	(METERS)	-
	FREEZE/THAW HISTORY	NUMBE	R OF ENTRIES: 0	
				
	NAME OF LAKE: IKE WALTON			
205.	STATE/PROV: WIS		10 0002: 141321	
	LAT: 46 2 N AREA: LONG: 89 48 W	5.77 (SQ KM)	MAX_DEPT+: 19.2 MEAN_DEP1H: 0.0	
-	2040: 23 46 #	(SQ KM)	(METERS)	
	FREEZE/THAW HISTORY	NUMBE	R OF ENTRIES: 0	
256 •	NAME OF LAKE: LAC VIEUX D	ESERT	ID CODE: 141331	
	LAT: 46 8 N AREA:	17.40	MAX DEPTH: 11.5	
	LONG: 39 7 W	(SQ KM)	MEAN DEPIH: 0.0	
	EDUETE/ILAW DISTORY	AULINDE		
	FREEZE/THAW HISTORY	NOMBE	C OF SMIR 125+ U	
-				
57.		E- 	-1D-C005:-141351	
	STATE/PROV: WIS	5.18	MAX DEPTH: 24.4	
	Evi av 12 ii nurvi			
	LAT: 46 13 N AREA: LONG: 89 47 W	(SQ KM)	MEAN DEP 1H: 0.0	-

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58.	NAME OF LAKE: COMO	ID CODE: 141371
-	STATE/PROV: WIS	
	LAT: 42 36 N AREA: 3.0 N	83MAX_DEPTH:2.4 (M) MEAN DEPTH: 0.0
		(METERS)
	FREEZE/THAW HISTORY	NUMBER OF ENTRIES: 0
59.		ID CODE: 141401
	LAT: 46 6 N AREA: 3.1 LUNG: 92 0 W (SQ F	12 MAX DEPTH: 11.9
	LUNG: 92 U W (SQ P	(METERS)
	FREEZE/THAW HISTORY	NUMBER OF ENTRIES: 0
		<u></u>
50 •	NAME OF LAKE: PARTRIDGS	10 C005: 141421
	STATE/PROV: WIS <u>LAT: 40 17 N AREA: 400</u> LONG: 88 53 W (SQ F	D1 MAX DEPTH: 1.8 KM) MEAN, DEPTH: 0.0
	LONG: 88 53 W (SQ)	(M) MEAN.DEPTH: 0.0 (METERS)
	FREEZE/THAW HISTORY	NUMBER OF ENTRIES: 0
61.	NAME OF LAKE: WHITE	1D CODE: 141431
	STATE/PROV:WIS	CO MAY DEDTA: 3.4
	LAT: 44 22 N AREA: 4.6 LONG: 88 56 W (SQ)	
	FREEZE/THAW HISTORY	NUMBER OF ENTRIES: C
-		
62 •	NAME OF LAKE: SINNISSIPPI STATE/PROV: WIS	ID CODE: 151441
	LAT: 43 22 N AREA: 11.5 LONG: 86 37 W (SO	58 MAX DEPT 1: 2.4
	LDNG: 88 37 W (SO)	KM) MEAN DIPH; 0.0 (METERS)
	FREEZE/THAW HISTORY	NUMBER OF ENTRIES: C
	TREEZE TRANSPORT	
63.	NAME OF LAKE: PUCKAWAY	ID CODE: 141451
	STATE/PROV: WIS	
	LAT: 43 45 N AREA: 22.6 LONG: 89 12 W (SQ)	00 MAX DEPTH: 1.5 km) mean dep 1H: 0.0
		(METERS)
	FREEZE/THAW HISTORY	NUMBER OF ENTRIES: 0
	. •	
54 •	NAME OF LAKE: POYGAN	TO CODE: 141461
	STATE/PROV: WIS LAT: 44 5 N AREA: 44.	50 MAX DEPTH: 3.4
	LDNG: 88 50 W (SQ)	KM) MEAN DEP H: 0.0

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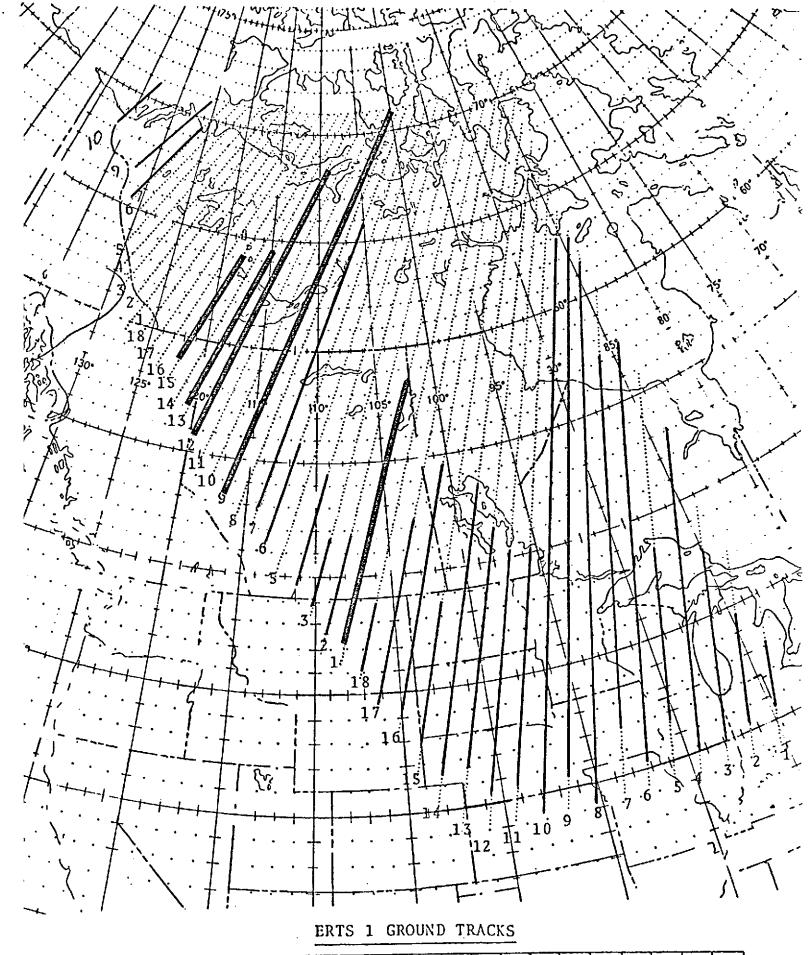
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255	NAME OF LAKE: RUSH STATE/PROV: WIS	10 0005: 141471
	LAT: 43 56 N AREA:	12-43 MAX DEPTH: 1-5 (SQ KM) MEAN DEPTH: 0-0
	25,101 65 46 11	(METERS)
	FREEZE/THAW HISTORY	NUMBER OF ENTRIES: 0
265 •	NAME OF LAKE: POTATO	ID CODE: 141481
	LAT: 45 19 N AREA:	2.16 MAX DEPTH: 12.2 (SQ KM) MEAN DEPTH: 0.0
	LUNG: 91 26 W	(SQ KM) MEAN DEPTH: 0.0
		NUMBER OF ENTRIES: C
· ·		
::7 ·	NAME TELAKS: METANGA	ID-CDDE: 141491
	LAT: 45 32 N AREA: LONG: 88 55 W	8.73 MAX DEPTH: 22.6 (SQ KM) MEAN DEPTH: 0.0
		(METERS)
	FREEZE/THAW HISTORY	NUMBER OF ENTRIES: 0
		,
		RVOIR ID CODE: 141501
	LAT: 45 43 N AREA:	20.80 MAX DEPTH: 5.7 (SQ km) MEAN DEPTH: 0.0
	E0144. 69 24 M	(METERS)
	FREEZE/THAW HISTORY	NUMBER OF ENTRIES: 0
	······································	
59	NAME OF LAKE: NORTH TWIN	
	STATE/PEDV: Wis	
	LONG: 89 8 W	11.27 MAX DEPTH: 13.7 (SQ KM) MEAN DEPTH: 0.0
	FREEZE/THAW HISTORY	(METERS)
	FRECZEZIHAW HISTURY	NUMBER OF ENTRIES: C
		
	*** END STATISTICAL ANALYS	CIC WWW
	THE PERSON OF TH	
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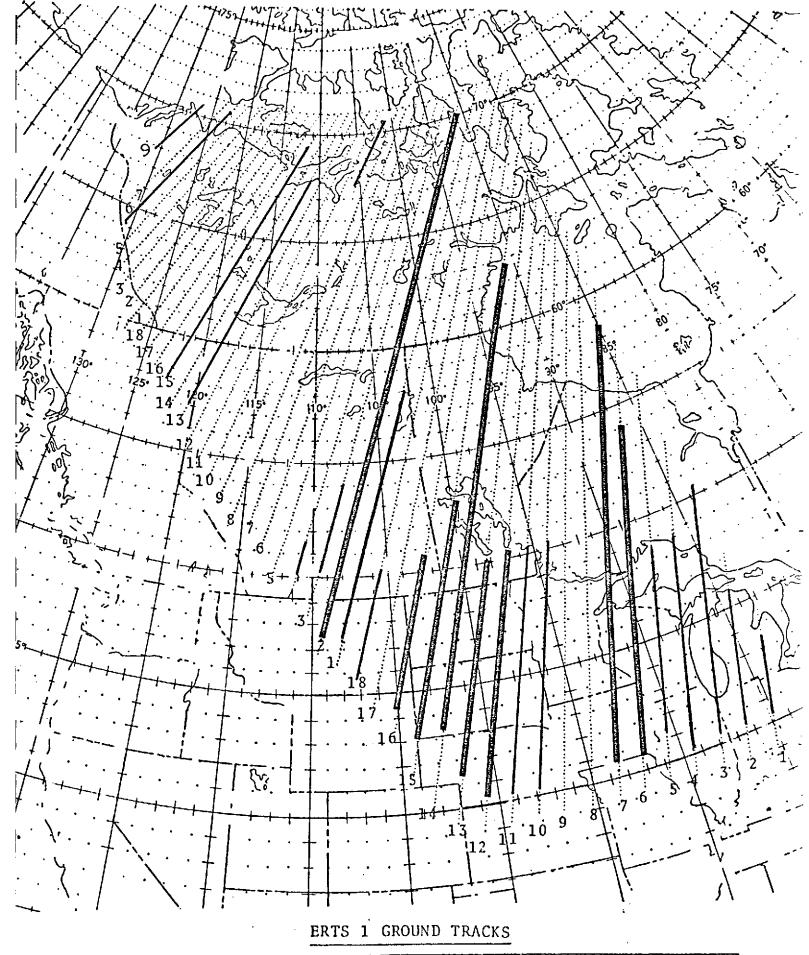
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APPENDIX C ERTS-1 SWATH COVERAGE FOR THE 1972 ICE YEAR*

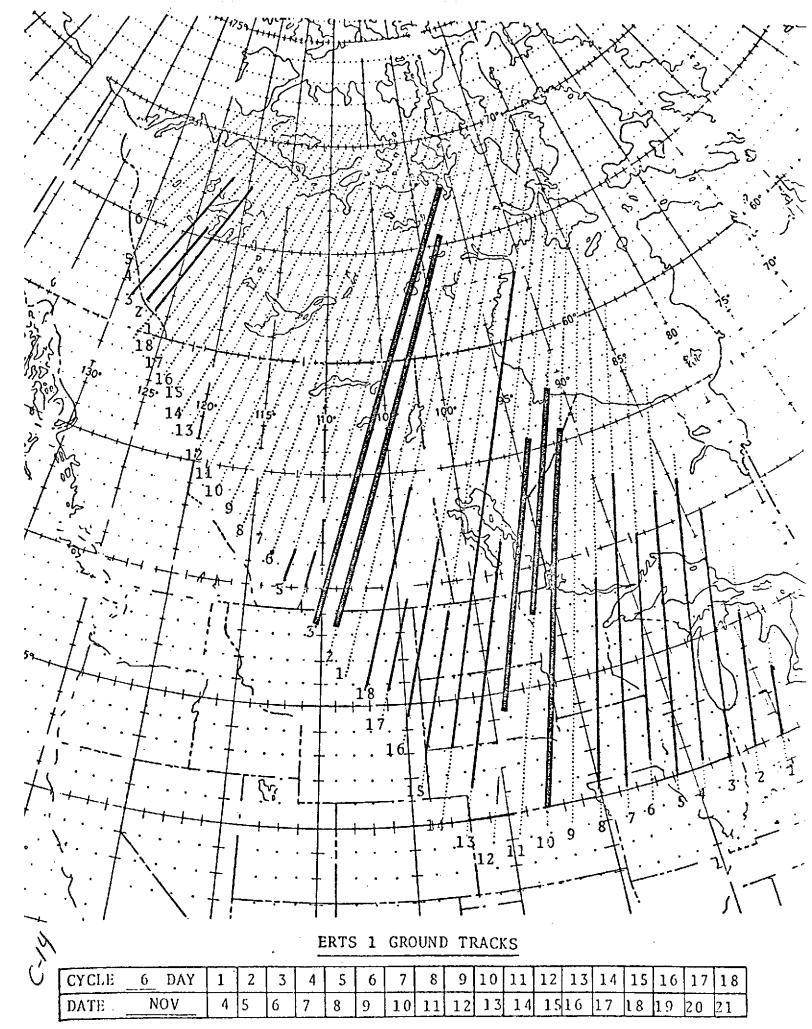
^{*} Solid lines represent imagery received for analysis; heavy solid lines represent swaths in which the transition zone was observed.

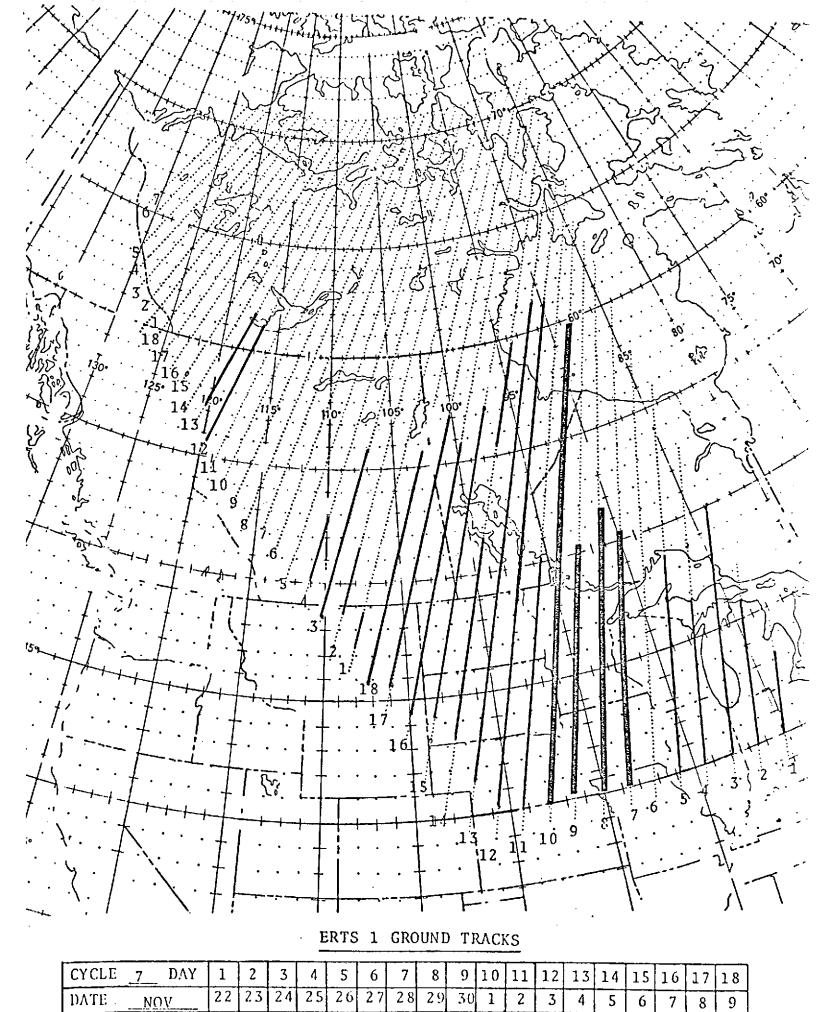


CY	CLE	4 DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
DA	TE.	SEP	29	30	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

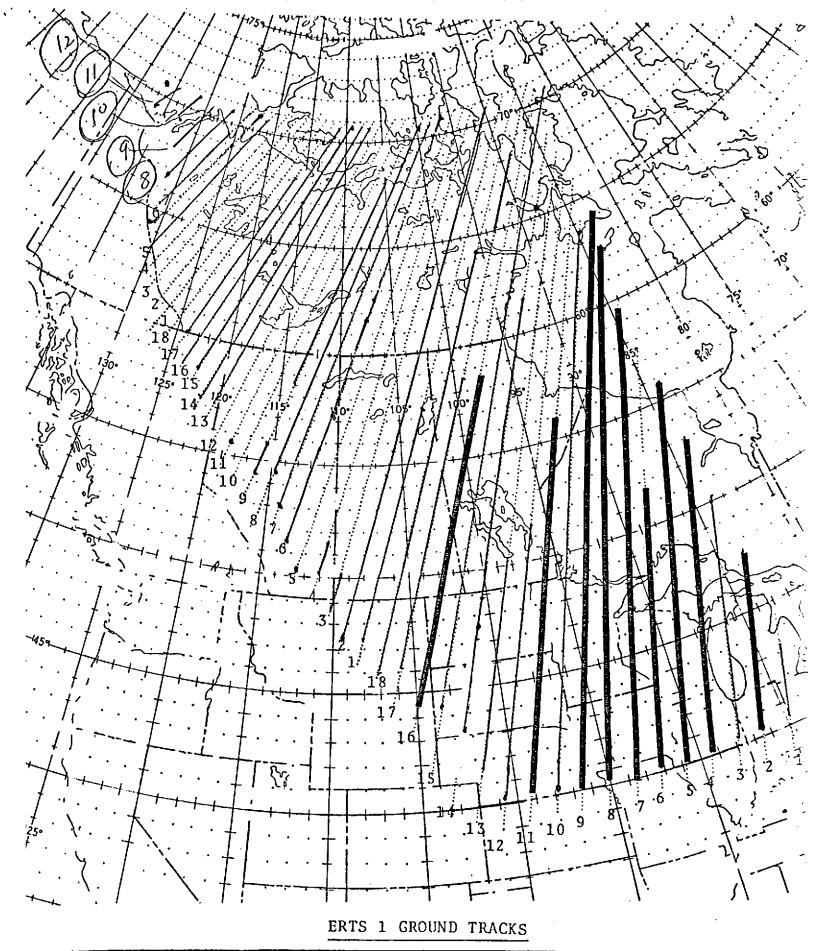


CYCLE	5 DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
DATE .	OCT	17	18	19	20	2 1	2.2	23	24	25	26	27	28	29	30	31	1	2	3

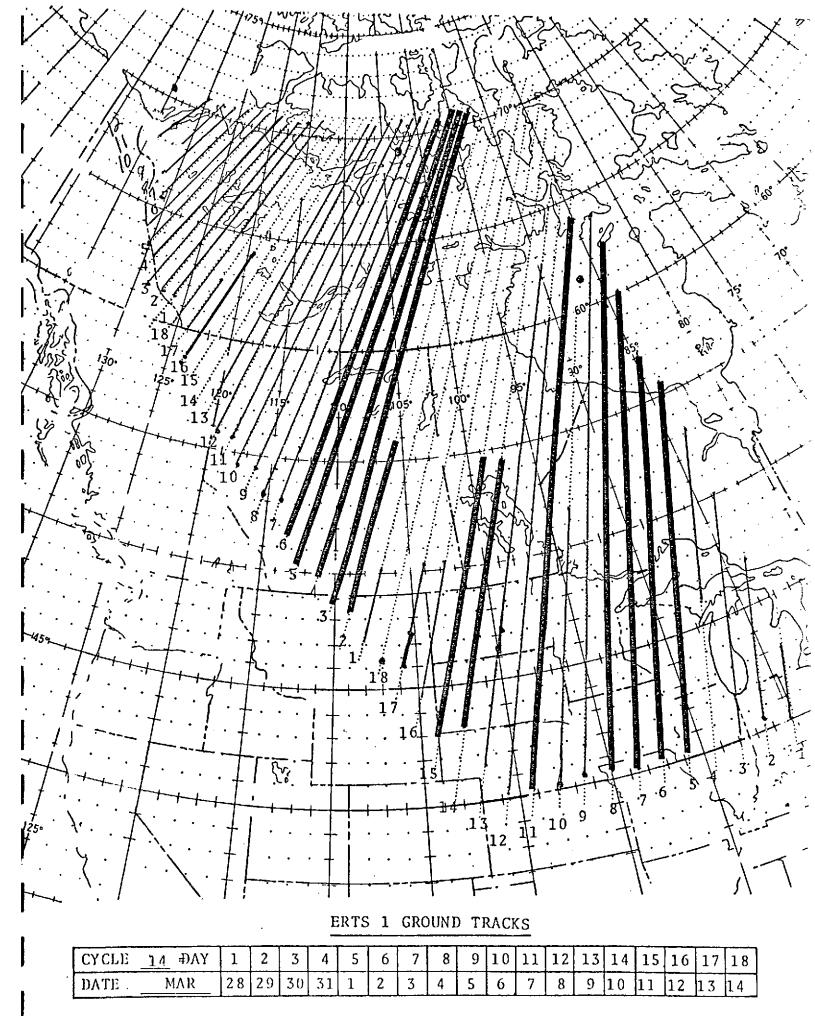


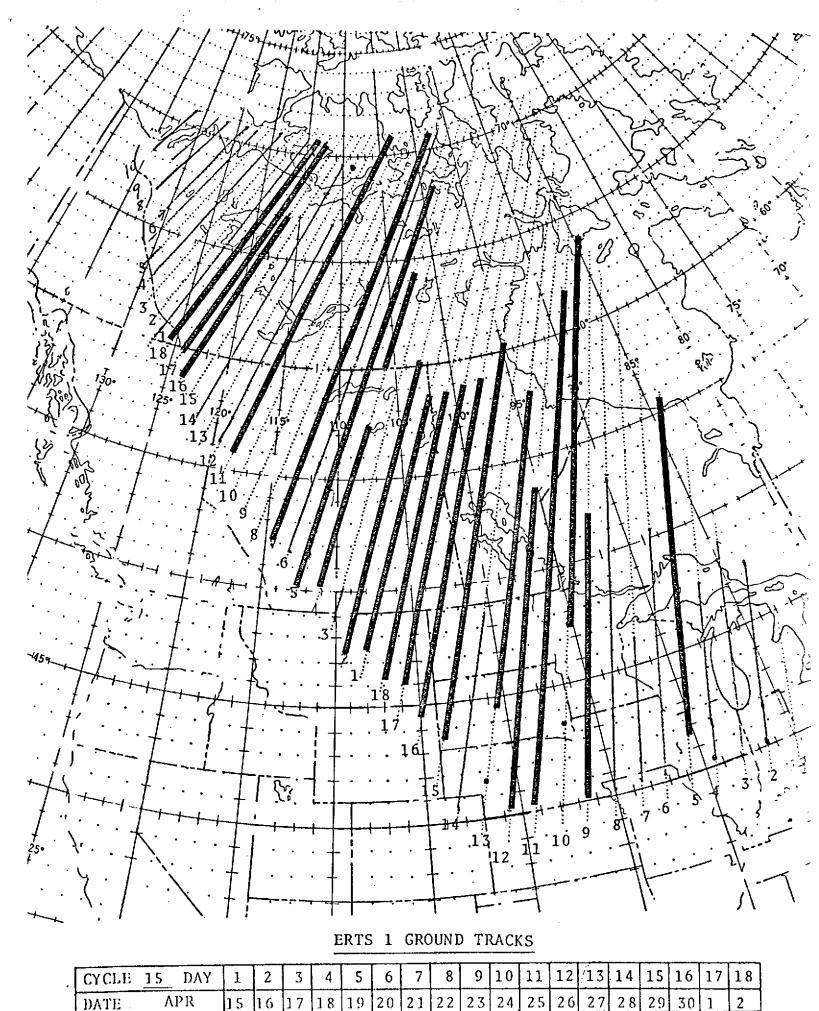


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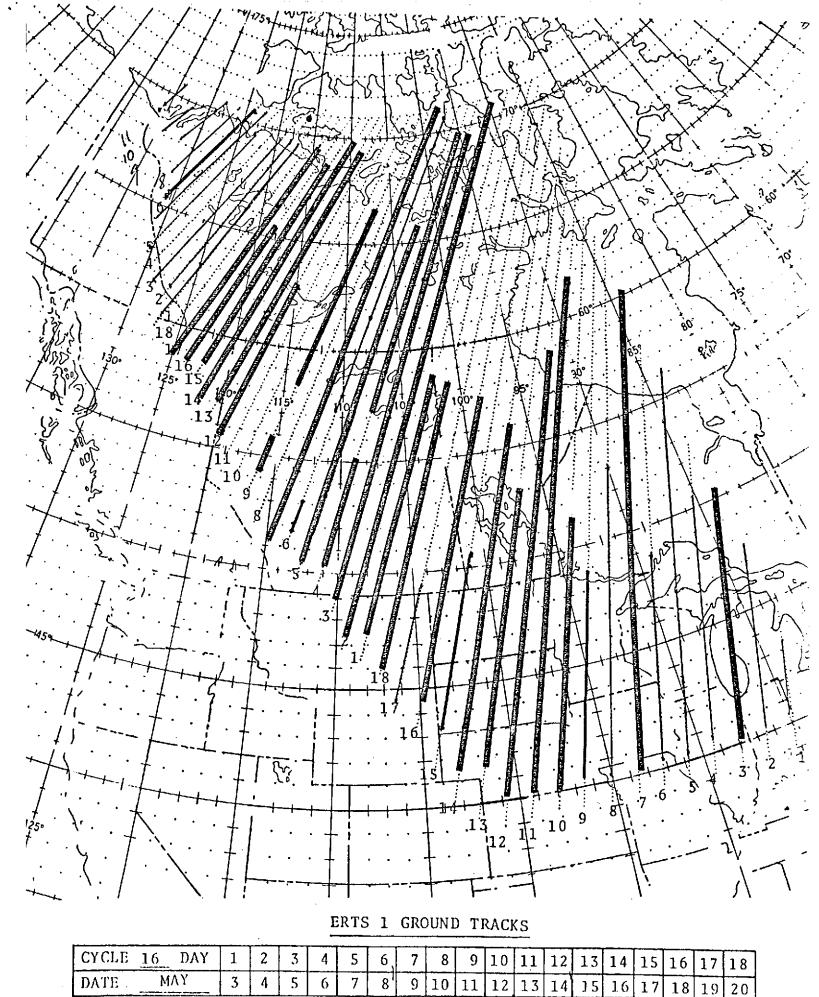


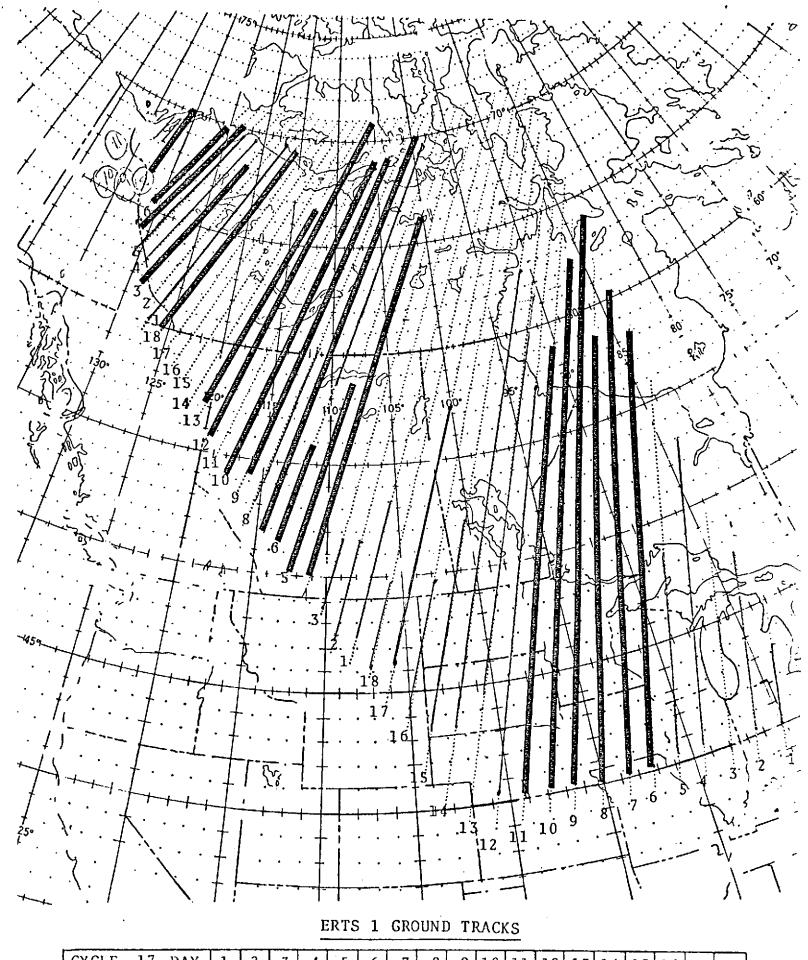
CYCLE	13 DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
DATE	MAR	10	11	12	13	14	15	1.6	17	18	19	20	21	22	23	24	25	26	27



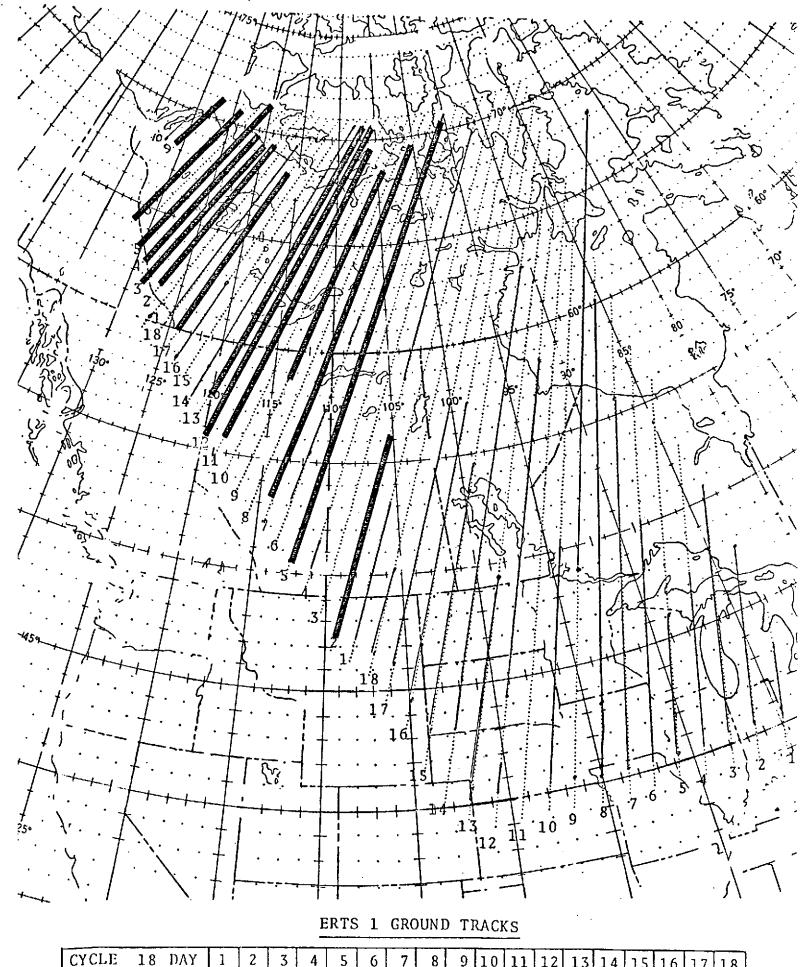


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CYCLE 17 DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
DATE: MAY	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7



18 DAY 2 9 | 10 | 11 5 12 13 14 15 16 17 18 JUNE 10 1112 13 15 14 16 17 18 19 20 21 22 23

DATE

